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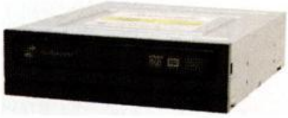

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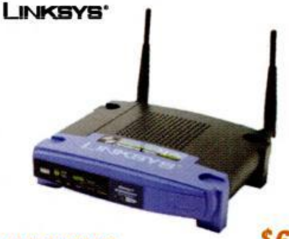

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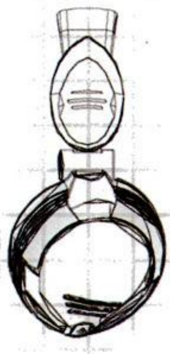

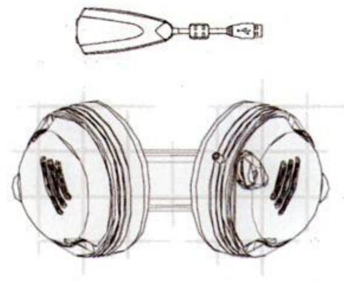

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Frequency response	16 - 28.000 Hz
Impedance	40 Ohm
SPL@ 1kHz, 1 Vrms	110 dB
Cable length	10 feet
Connectors	3.5 mm

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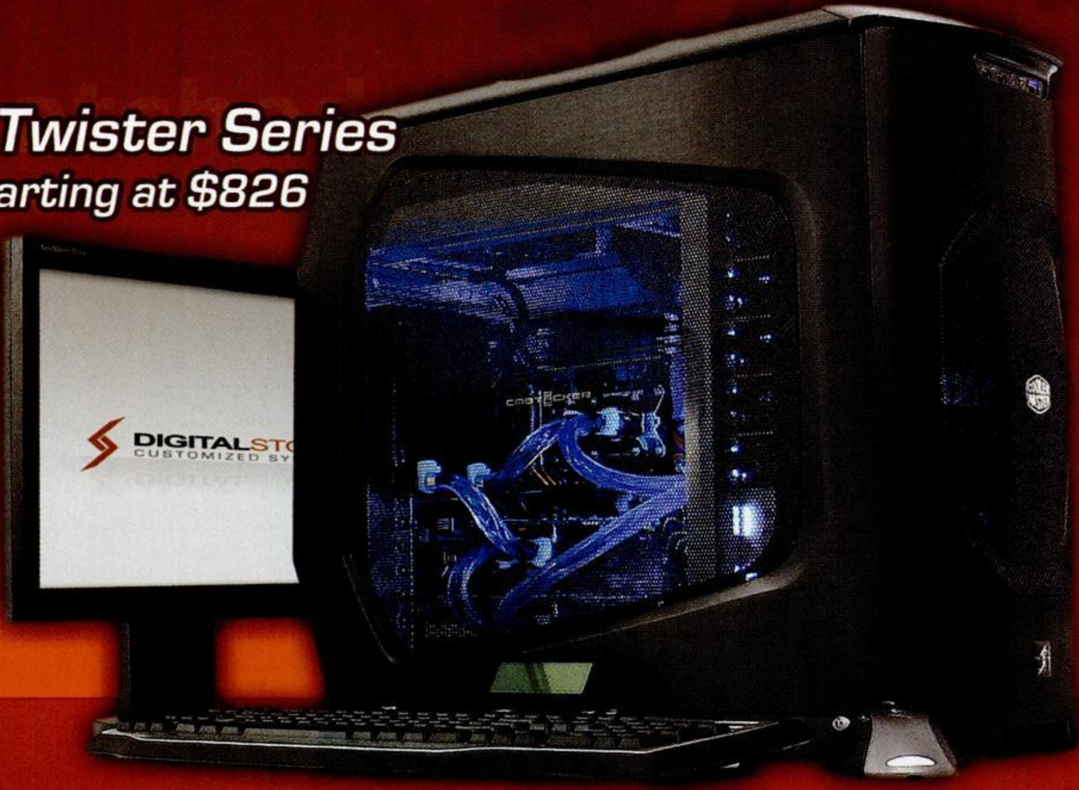

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Release Notes

The Future Is Now!

After five long years, 40 million new lines of code, untold numbers of revoked "new features," and a deluge of marketing hype, Microsoft's Vista is finally here. Was the wait, and hype, worth it? Well, ultimately, that's for you to decide.

Here at *Maximum PC*, we remain a bit...underwhelmed, at least until the coming wave of DirectX 10 games hits our hard drives. Then, hopefully, Vista's true potential will be unleashed. In the meantime, though, Vista definitely represents a step up for the Windows platform in terms of elegance, security, and usability. (Unfortunately, it's just as big a step up as far as hard-drive footprint and price tag.)

Nevertheless, respect to you! You're reading this, which means you're an early adopter—or that you're at least *thinking* about being one. And when it comes to the release of a new OS, that takes some technical cajones.

The release (and adoption) of a new OS always comes with growing pains—driver issues, hardware incompatibilities, system upgrades—and Vista is no different. But Microsoft learned many lessons with XP, and thus far, Vista isn't nearly as troubling in these respects as we'd feared.

Technically, you may not *need* Vista now, but it will displace XP sooner or later, so why not be ahead of the curve? This issue is jam-packed with all the info you need to get off on the right foot with the new Windows, so to speak.

If you just picked up the new OS, you've definitely come to the right place: We show you how to safely migrate from XP to Vista—with all your files and settings intact! Follow our step-by-step guide and you *will* install Vista the right way.

If you're just trying to decide if you should upgrade to Vista now or later, we do everything we can to help you make the decision that's right for you. We walk you through *all* of Vista's most important new features, and we take a close look at the new security enhancements. And we tell you how to determine if your PC is even up to the task of running Microsoft's resource-hungry OS.

Vista's multimedia capabilities truly outshine those in XP, too. For starters, you can actually burn a DVD movie with Vista—whoop! Our "Making Movies With Vista" story walks you through the process.

Finally, we take an in-depth look at how Vista and DirectX 10 are going to deliver the most impressive visuals we've seen on the PC—or any other gaming platform (PS3 and 360 who?).

So let's roll up our sleeves and dive in!

— Steve Klett
steve@maximumpc.com

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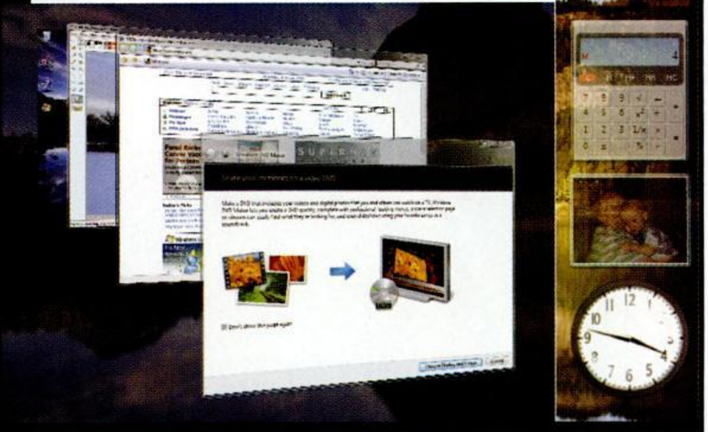

32 **VISTA: The *Definitive* Review!** Before you upgrade, you need to read our no-punches pulled review.

38 **TEN REASONS TO UPGRADE TODAY (AND TEN REASONS TO WAIT!)**

On the fence about whether you should move to Vista right now, or hold off for a while? Read this to help you decide!

49 ***GET READY FOR VISTA!***

Not sure if your PC can handle the new Windows? Our guide will help you find out for sure!

Windows Vista
Upgrade Advisor

Welcome to Windows Vista Upgrade Advisor

Windows Vista Upgrade Advisor will scan your computer to help you choose which edition of Windows Vista is right for you. It will also provide guidance about many of the advanced Windows Vista features your computer supports and compatibility of your existing software and devices with Windows Vista.

Note: Before you start the scan, plug in any devices that you regularly use with your computer, such as printers, scanners, or external hard drives.

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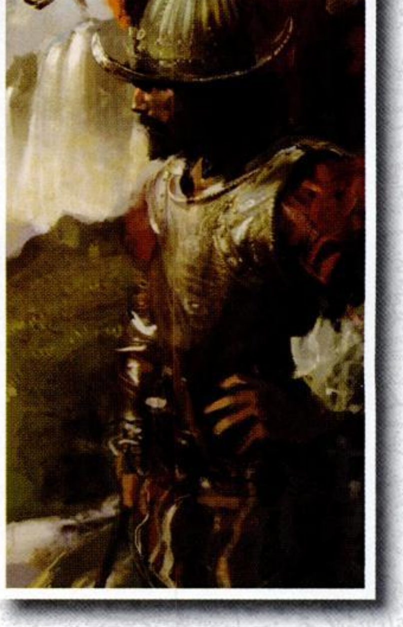

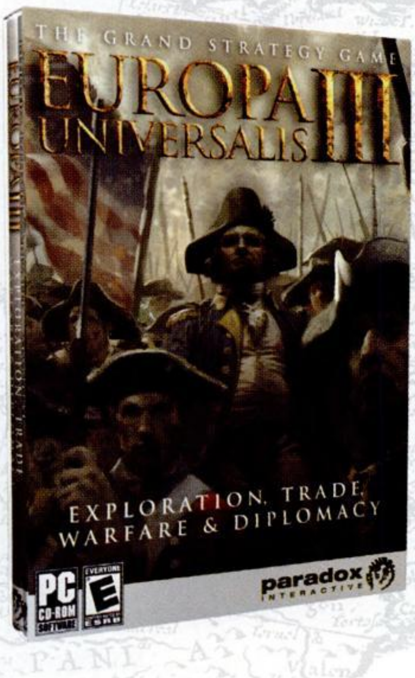
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Ultimate Guide to Windows Vista

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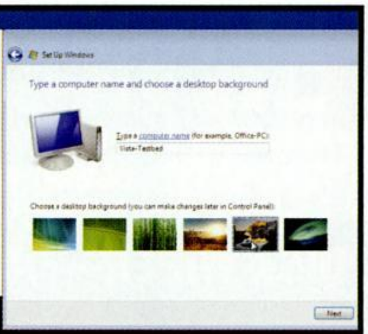
INSTALL VISTA:

The Right Way!

In-depth instructions for migrating from XP to Vista with all your files and settings intact!


Set Up Windows

Type a computer name and choose a desktop background

Type a computer name (for example, Office-PC):
Vista-Testbed

Choose a desktop background (you can make changes later in Control Panel):

72

VISTA'S SECURITY UPGRADES

We explain how Vista will make your PC safer than ever before! (Really!)

78

LIGHTS, CAMERA, ACTION!

Vista's new multimedia toys are significantly better than XP's. Expert "PapaJohn" guides you through the process of making and burning—yes, burning—DVD movies with Vista.

84

NEXT-GEN GAMING!

How Vista delivers the most intense, and realistic, graphics ever on the PC!

96

GIVE XP A VISTA MAKEOVER!

How to make your pals believe you shelled out for Vista, without spending a dime!

10

On the Disc!

Three full-version programs; 29 useful apps, utilities, and extras; and one addictive game. The CD that came bundled with this issue is much more than a glorified coaster!

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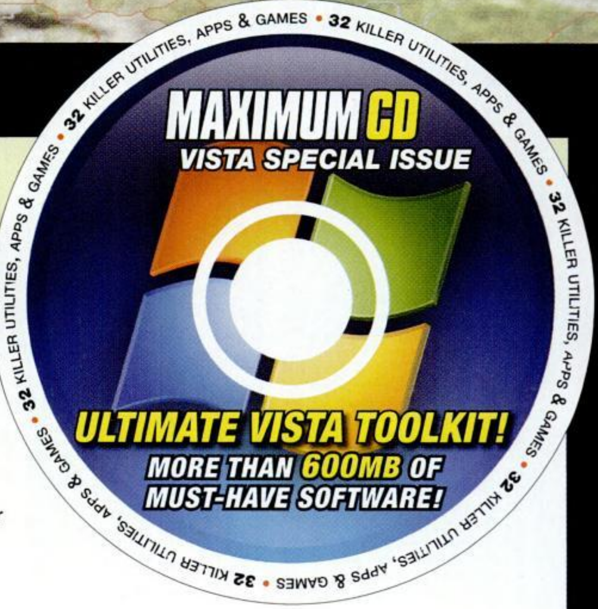
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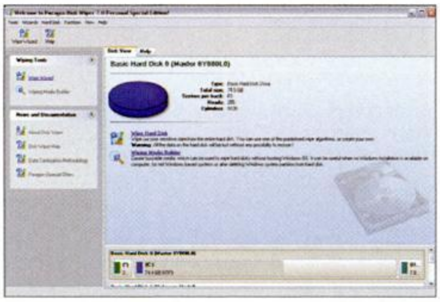
Say you want to give an old PC to a friend but you want to be ultra-sure that all your data is wiped before proceeding. In this day and age of digital identity theft (and hiding "multimedia" collections) it just makes sense, right? Enter *Disk Wiper 7.0*: This program's specialty is cleaning all traces of former lives from your drives.

To get your FREE FULL VERSION of *Disk Wiper 7.0* going, you just need to register with Paragon Software to get your serial number—that's the only string. Fire-up the installation executable, and click on the registration button to jump to Paragon's online registration page. Fill out the info—uncheck the newsletter radio box if you don't want the "spam"—and then check your inbox for the serial number. Enter your user name and serial number, click next, and follow the prompts.

Launch the program and examine the disk information at the bottom – you can drag the top of the window up to view multiple drives, if needed. From here, simply select the drive you want to wipe, and then select "Wipe Hard Disk" from the Disk View window, or use the Wipe Wizard's Wiping Tool.

The Wipe Wizard is extremely easy to use: just follow the prompts, and make sure you have selected the proper drive to wipe! (You will not be able to recover wiped data!)

Note: You may also use Wiping Media Builder to create a bootable CD that you can use to wipe hard disks WITHOUT booting Windows, which can be useful for new OS installs and new system builds that use recycled drives. And you can also use the program to create and format partitions; assign drive letters; test disk surfaces; and view boot sectors.


Disk View
Help
Wiping Tools
Basic Hard Disk 0 (Maxtor 6Y080L0)
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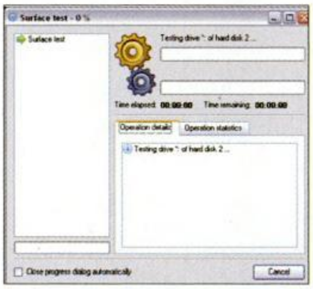
Wiping Media Builder

Disk Wiper will eradicate all traces of unwanted data from your hard drive for good.


Surface test - 0 %
Surface test
Testing drive *: of hard disk 2 ...
Time elapsed: 00:00:00
Time remaining: 00:00:00
Operation details
Operation statistics
Testing drive *: of hard disk 2 ...
Close progress dialog automatically
Cancel

Think a drive's starting to go bad? Use *Disk Wiper* to give it a thorough checkup!

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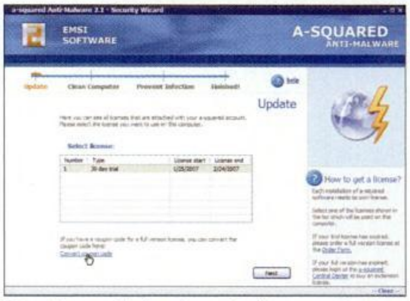
Trojans, spyware, adware, worms, keyloggers, rootkits, and dialers—oh my! There's a lot of nasty stuff out there that can infect your PC without your knowledge, gradually bloating your system and degrading performance. Keep your PC purring with one of our favorite malware-mashers: *A-Squared Anti-Malware*!

Launch the install program from the CD, and then follow the prompts. You will be required to register with EMSI Software to get a logon and password to install the program. The logon and password will come via email after you complete the simple registration. Enter the logon and password and click Next. The 30-day trial license will be selected by default. You don't want that—we've got a free 6-month full-access pass for you!

Click "convert coupon code" and enter **wisiyo4118. This code is valid from February 25 until April 1.** Entering it anytime between those dates will grant six months of use!

Follow the prompts to complete the installation and update process, and then fire up the A-Squared Security Center. Select the scan option of your choice, and then sit back and watch *A-Squared Anti-Malware* do its thing!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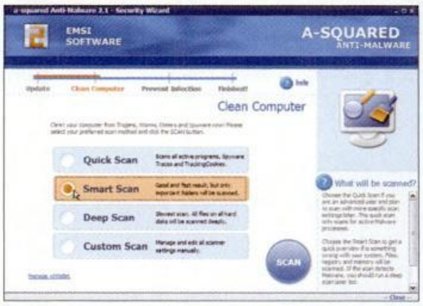
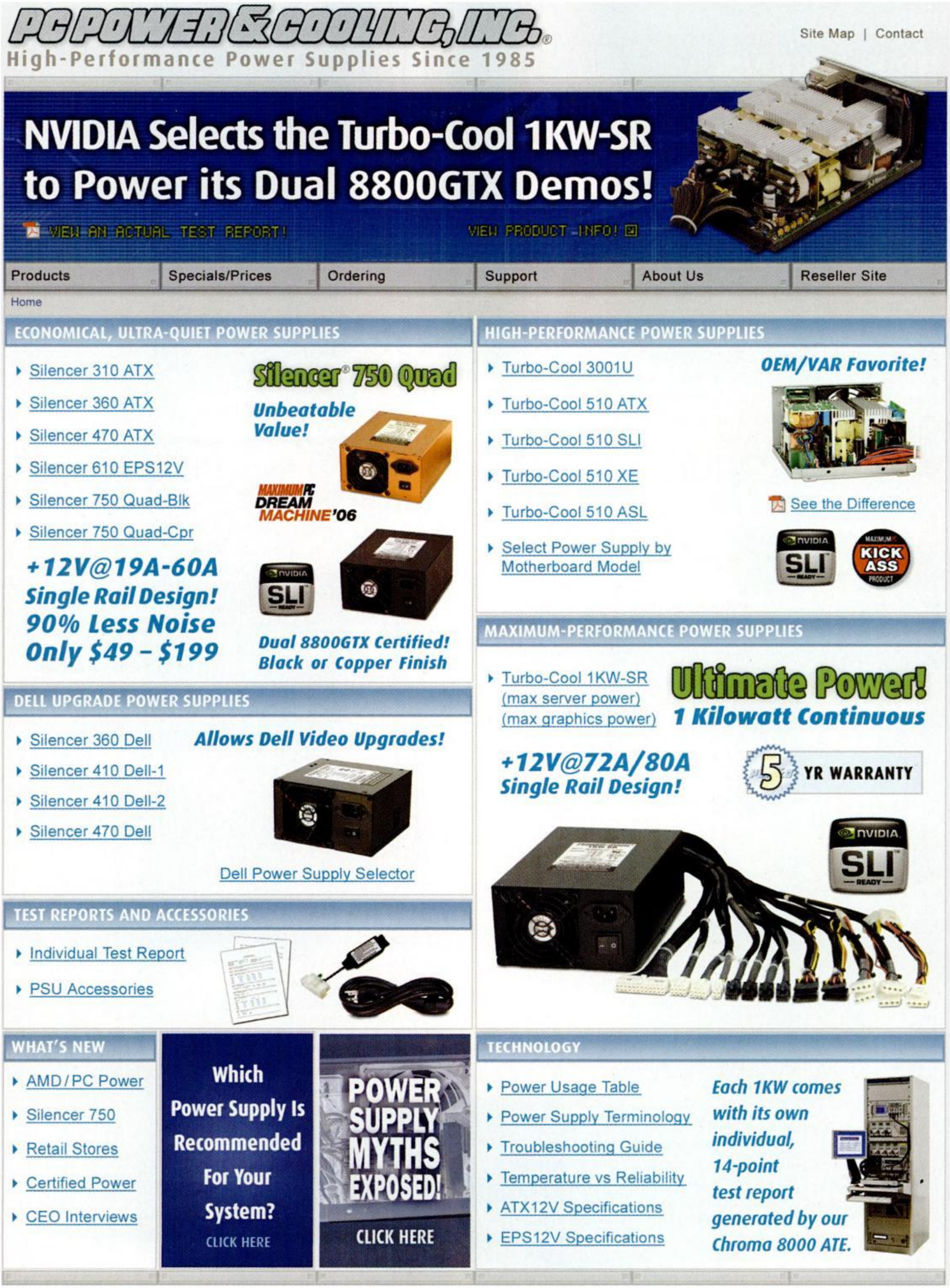

a-squared Anti-Malware 2.1 - Security Wizard
EMSI SOFTWARE
A-SQUARED ANTI-MALWARE
Update
Clean Computer
Prevent Infection
Finished!
Help
Clean Computer
Quick Scan
Smart Scan
Deep Scan
Custom Scan
SCAN
What will be scanned?
Close

It's a good idea to perform at least a Quick Scan daily, and Deep Scans weekly.

Continued on page 12



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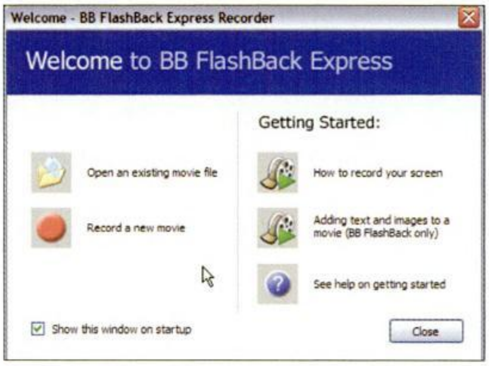
Continued from page 10

BB FLASHBACK EXPRESS— FULL VERSION!

This is a very handy program you can use to record and replay movies of your computer screen. Now why would you want to do that? Well, you can use it to record and playback game footage (games must be run in windowed mode), as well as make your own tutorial videos to show Mom and Pop how to access their email—the possibilities are endless!

With *BB Flashback Express* you can record just a window, region, or full-screen movie of your desktop, add spoken commentary, and then output your movies to a flash and AVI formats, with full control over export size and quality. The Express version does not include editing capabilities. (However, you can use a third-party app of your choice to edit your movie files.)

Once again, we've come through with the full version ($39.99 value!) for you to have some fun with!



Welcome - BB FlashBack Express Recorder

Welcome to BB FlashBack Express

Open an existing movie file

Record a new movie

Getting Started:

How to record your screen

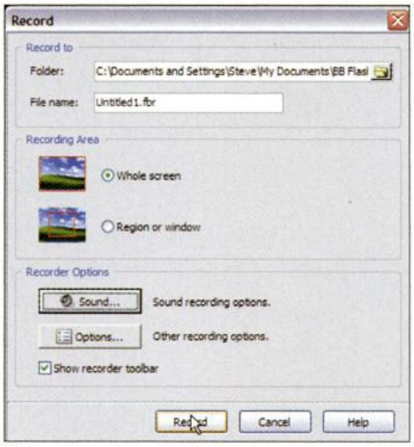
Adding text and images to a movie (BB FlashBack only)

See help on getting started

☑ Show this window on startup

Close

Before recording your movie, check out the tutorials under Getting Started for some tips and tricks!



Record

Record to

Folder: C:\Documents and Settings\Steve\My Documents\BB Flasl

File name: Untitled1.fbr

Recording Area

● Whole screen

○ Region or window

Recorder Options

Sound... Sound recording options.

Options... Other recording options.

☑ Show recorder toolbar

Record Cancel Help

Then it's simply a matter of selecting record, a file name, and recording area—make sure to set up your sound-recording options too!

EUROPA UNIVERSALIS III

You know what they say: "All work and no play makes Jack a dull boy." And we don't want Jack (or Jill) to be dull, do we?

That's why we've included a demo of Paradox Interactive's epic strategy game *Europa Universalis III*. If you've played *Civilization*, you've an idea of what this game has in store for you.

Europa Universalis III is set between the years 1453 and 1789. You pick a nation, from a pool of 250, and lead it from a fledgling nation to a global power. You must explore and trade, and conduct diplomacy to grow your nation. When the latter doesn't work, or if you're just the brutal type, warfare is another option.

The demo allows you to play select tutorial chapters and all the Western nations from 1492 to 1520. So give it a whirl! MPC

Europa Universalis III is a deep game—there's a lot going on, and it can be daunting. Check out the tutorials for helpful tips!

You don't have to wage war. You can chart your way to victory purely via economic prowess.

IRISH SEA
TYNE
DOGGER BANK
GLAMORGAN
ST. GEORGE'S CHANNEL
WESSEX
KENT
CORNWALL
STRAITS OF DOVER
THE CHANNEL

Do you have what it takes to turn Britain into a global power?

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Because it gives me the power to be at the top of modern games!

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Tom Moyer
Salem, OR USA

Antec
The Power of You

Image from the game City Life used with permission of Monte Cristo and CDV Software Entertainment USA, Inc.

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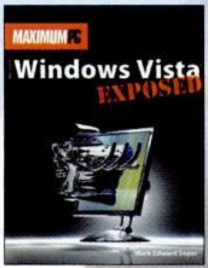
Welcome to WINDOWS

All aboard for a guided tour of Windows Vista's new features — and upgraded XP hand-me-downs


MAXIMUM PC
Windows Vista
EXPOSED
Mark Edward Soper

The following material has been excerpted from Que Publishing and *Maximum PC's* upcoming book *Maximum PC Windows Vista Exposed* by Mark Soper. The book will be available in May, so enjoy this exclusive sneak peek!

(ISBN: 0-7897-3586-5, $24.99).

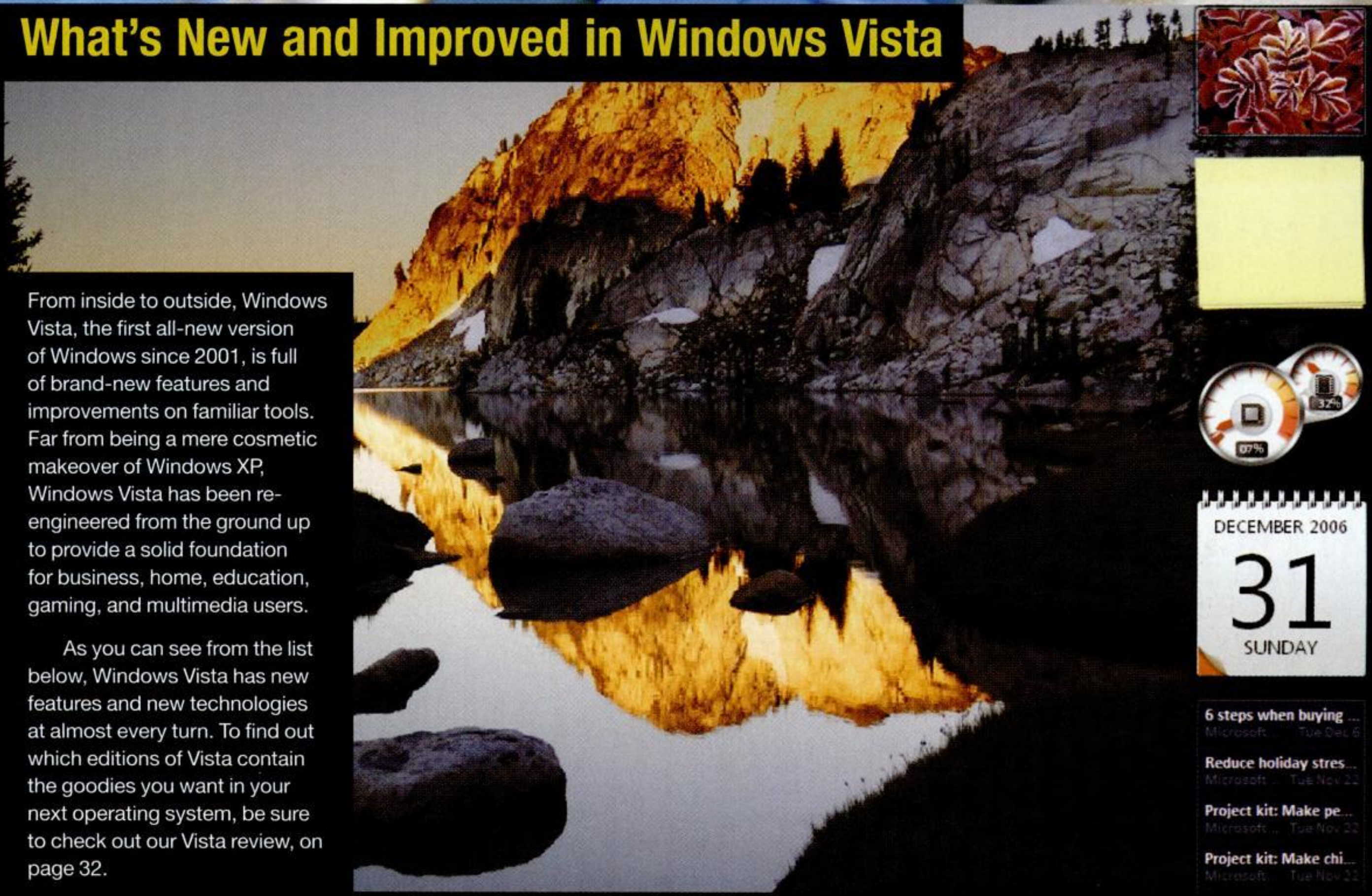
VISTA

steve
Search
January 2007
25
Thursday
00:00:00
music
artist
songs
PIANO TRIOS
BURNS COLLECTION
Now Playing
Library
Sync
URGE
Sign In
BATTLE of BRITAIN
PLAY MOVIE
SCENE SELECTION
THEATRICAL
SUBTITLES
Title 2
DVD
Untitled - Paint
Windows Media Pla...
Kennedy Space Center 039 - Photo Gallery Viewer
Go To Gallery
File
Fix
Info
Print
Create
E-mail
Open
Auto Adjust
Adjust Exposure
Brightness
Contrast
Adjust Color
Crop Picture
Fix Red Eye
Undo
Redo
Windows Vista (TM) Beta 2
Evaluation copy. Build 5384
Kennedy Space Cen...
Kennedy Space Cen...

Walk the Dog!
Dinner at the Smiths, 7:30!

Continued from page 15

What's New and Improved in Windows Vista



From inside to outside, Windows Vista, the first all-new version of Windows since 2001, is full of brand-new features and improvements on familiar tools. Far from being a mere cosmetic makeover of Windows XP, Windows Vista has been re-engineered from the ground up to provide a solid foundation for business, home, education, gaming, and multimedia users.

As you can see from the list below, Windows Vista has new features and new technologies at almost every turn. To find out which editions of Vista contain the goodies you want in your next operating system, be sure to check out our Vista review, on page 32.

Vista's Chock Full O' New Nuts!

GUI, Desktop, and User Interface

- 3D Aero GUI with DirectX 9 acceleration
- Vector-graphics-based GUI
- Live thumbnails of applications in TaskBar
- Windows Sidebar
- 3D application switching
- New menu system

Multimedia Applications

- Windows Media Player 11
- Windows Movie Maker 6
- Windows Photo Gallery
- Windows Media Center
- Windows DVD Maker
- Windows XPS print and document technology

Gaming Enhancements

- DirectX 10
- Games Explorer

Communications Applications

- Internet Explorer 7
- Windows Mail
- Windows Calendar
- Windows Collaboration
- Windows Contacts
- Windows Fax and Scan

File Management

- Instant Desktop Search
- Saved searches and virtual folders
- Easy access to file metadata
- Favorite Links

System Management

- Welcome Center
- Ease of Access Center
- Windows Easy Transfer
- Performance Diagnostic Console
- Memory Diagnostics
- Backup and Restore Center

Security and System Protection Features

- Enhanced security for x64 versions
- User Account Control (UAC)
- Comprehensive parental controls
- Windows Defender antispyware
- Enhanced firewall
- Phishing Filters in Windows Mail and IE 7
- IE 7 Protected Mode
- BitLocker Drive Encryption
- USB device control

Why install the 32-bit version of Vista if you have a 64-bit processor? Because 64-bit Vista is simply not ready for prime time. Driver, utility, and shell extension (right-click) support are still largely MIA.

The following sections introduce you to what's new and improved in Windows Vista.

The Backup tool can't use drives it can't find. Before you start the backup process, connect your external drive.

Vista's New GUI and Desktop Goodies!

From the first time you start Windows Vista, particularly if your system can use the DirectX 9-compatible 3D Aero GUI, Vista lives up to its name, offering a new way to interact with your desktop and applications.

AERO DESKTOP GUI

Aero is the default GUI in most versions (except Vista Basic). Its vector-based technology means that you can view your running applications as live thumbnails (see Figure 1.1) or in a slanted 3D stack (see Figure 1.2), dubbed *Flip 3D*. The translucent Aero (formerly known as Aero Glass) GUI helps you see windows behind windows and makes switching between applications easier than ever.

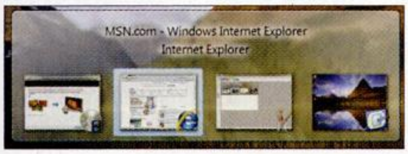
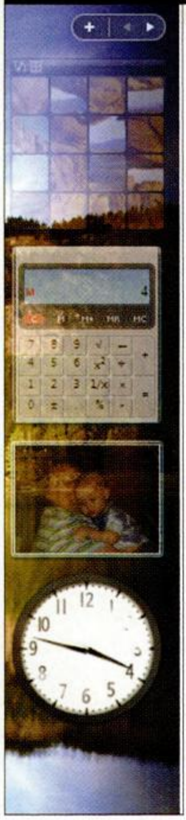

MSN.com - Windows Internet Explorer
Internet Explorer

Figure 1.1 *Windows Vista's task switcher provides live thumbnails of each running program to help make selecting the right program easier.*

WINDOWS SIDEBAR

Windows Sidebar (see Figure 1.3) places useful gadgets on the side of your desktop, which is especially handy if you have a widescreen display. However, even if you have a traditional 4:3 ratio display like the one in Figure 1.3, Sidebar gadgets feature adjustable transparency levels, so they stay out of your way until you select one for use.



< Figure 1.3 *The Windows Sidebar puts your choice of helpful gadgets a click away on your screen without monopolizing your screen real estate.*

BETTER, FASTER MENUS

It doesn't matter how snazzy the user interface is if you can't find what you want. In a welcome change from the Start menus of Windows past, which gradually took over your desktop as you installed more programs, Windows Vista's Start menu is thinner and smarter. The left pane of the Start menu automatically displays the current menu tree, whereas the right pane provides links to Explorer windows of various types (see Figure 1.4). When you open a folder in the left pane, the folder opens in the same pane, instead of expanding across your screen like a mutant virus run amok.

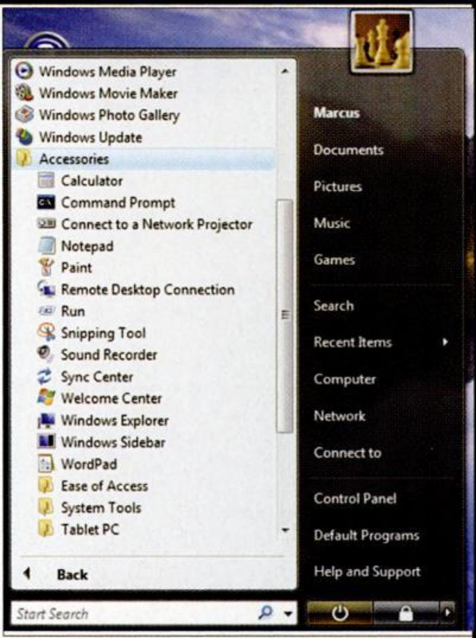

Windows Media Player
Windows Movie Maker
Windows Photo Gallery
Windows Update
Accessories
Calculator
Command Prompt
Connect to a Network Projector
Notepad
Paint
Remote Desktop Connection
Run
Snipping Tool
Sound Recorder
Sync Center
Welcome Center
Windows Explorer
Windows Sidebar
WordPad
Ease of Access
System Tools
Tablet PC
Back
Start Search
Marcus
Documents
Pictures
Music
Games
Search
Recent Items
Computer
Network
Connect to
Control Panel
Default Programs
Help and Support

Figure 1.4 *As you move from menu to menu, Windows Vista's menu system switches views in the left pane to avoid taking over your desktop.*

The result? You find the programs you want faster and easier than ever before. If you're wondering what happened to the Run command, it's been banished to the Accessories menu (although you can bring it back out of exile with a bit of customization of the Start menu). However, you might want to leave Run cooling its heels and try the new Search feature instead. Type in the name of the program you want to run, and the Start menu highlights it (along with any other files that have matching text). Double-click the file you want to run, and away you go. Run or Search? Your choice, your computer!

Vista's Multimedia Applications

Although Vista's new user interface makes a sharp break with the GUIs of the preceding ten years of Windows, Vista stays true to the Windows tradition in another way: It provides new, improved, and truly useful applications for multimedia.

WINDOWS MEDIA PLAYER 11

Windows Media Player 11 is not your father's Media Player. It features a brand-new user interface, integrated DVD playback (see Figure 1.5), and support for more types of media than ever before.

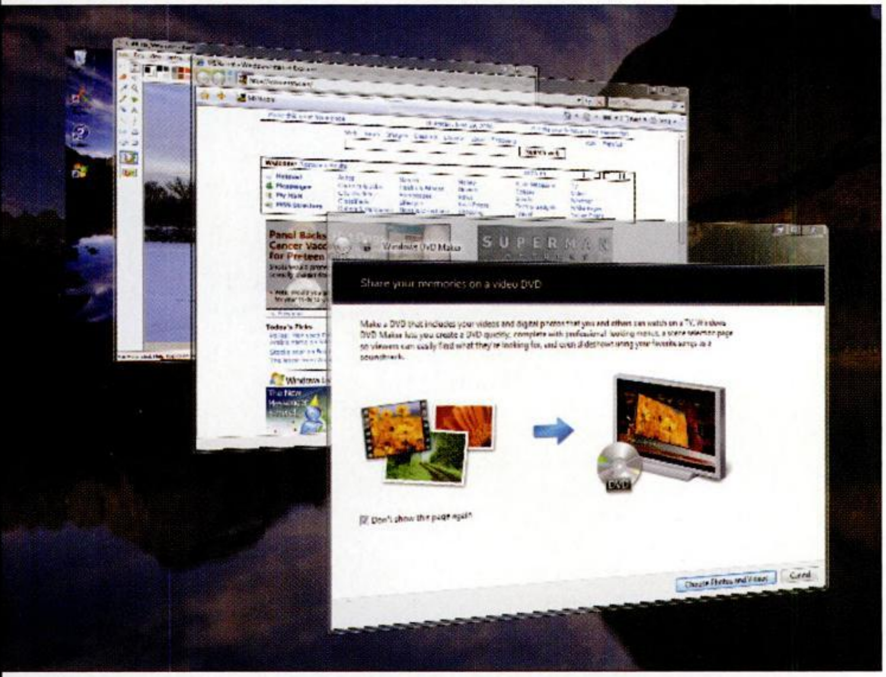

Windows DVD Maker
SUPERMAN
Share your memories on a video DVD

Figure 1.2 *The Aero GUI supports translucent windows and Win-Tab task switching with a 3D view of each active program.*

Continued on page 19

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- Optional Over-the-Air HDTV Tuner
- 1GB DDR2 667MHz Memory
- 8x DL DVD±R/RW Slot Load Drive
- Remote Control for Media Center
- Wireless 2.4GHz Multimedia Keyboard with Integrated Trackball

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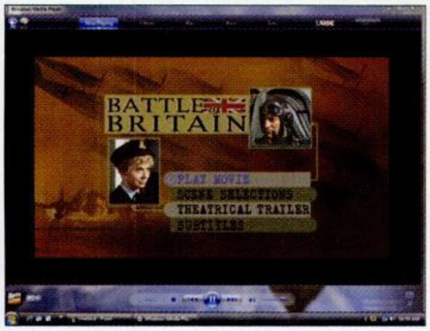


Figure 1.5 *At last! Windows Media Player can play DVDs without a third-party decoder! (Battle of Britain, MGM, 1969).*

WINDOWS MOVIE MAKER 6

Windows Movie Maker 6 now features support for HDTV and a huge array of special effects (see Figure 1.6).

Windows Movie Maker 6 gives you the ability to adjust brightness and add special effects to your video or photo footage and helps you make better movies without sacrificing ease of use. For much more on the new Movie Maker, see "Making Movies With Vista," page 78.

WINDOWS PHOTO GALLERY

The brand-new Photo Gallery combines photo editing (see Figure 1.7) with tag- and caption-editing, a print wizard, DVD- and CD-creation wizards, an email wizard, and a powerful slide show player with more than a dozen themes.

You'll still want a full-blown photo editor for complex editing jobs, but for quick touch-ups and easy organizing of your growing digital photo collection (whether shot digital to start with or scanned from traditional sources), Photo Gallery is a great addition to Vista.

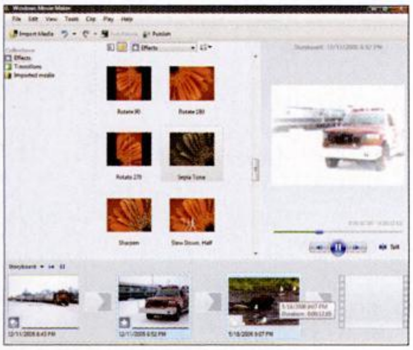


Figure 1.6 *Windows Movie Maker 6 provides a wide range of special effects, such as the Old Film effect being used for the picture clip at the top right.*

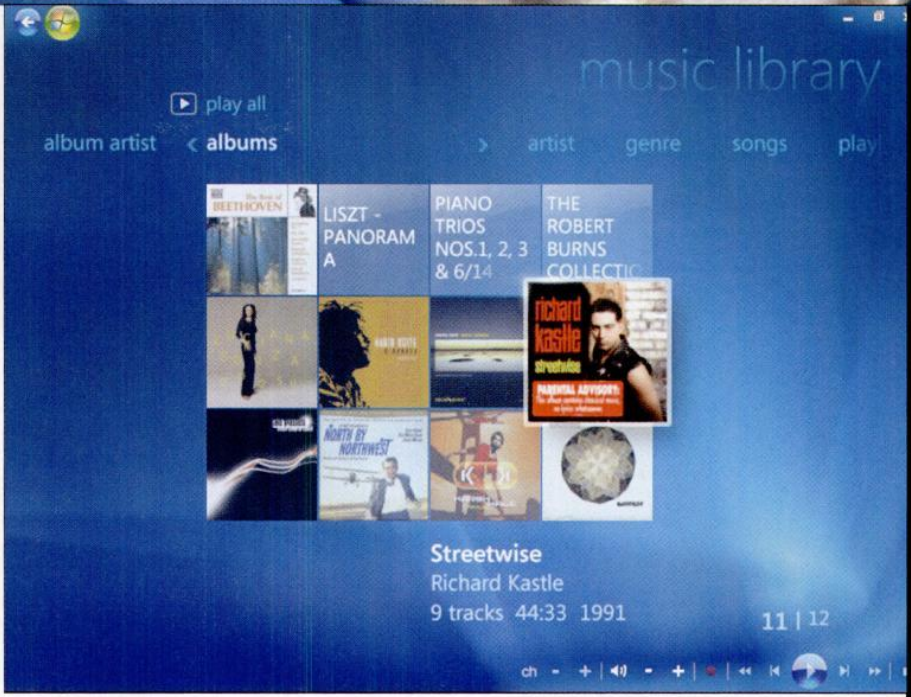


Figure 1.8 *Play your favorite media with Media Center.*

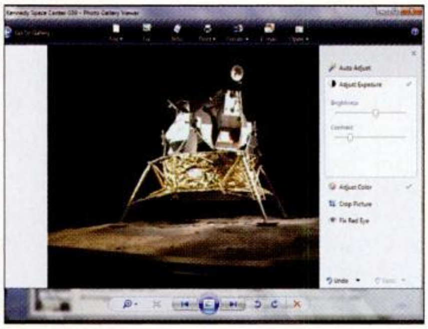


Figure 1.7 *Photo Gallery Viewer provides quick photo editing and other imaging tools to Vista users.*

MEDIA CENTER

Some Vista editions include Media Center, which, like its Windows XP Media Center Edition ancestors, provides a full-screen home theater experience for music (see Figure 1.8), movies, TV recording and playback, and other media. Sit back, use your remote, and relax! You can minimize Media Center if work interrupts your listening or viewing enjoyment.

WINDOWS DVD MAKER

Although rewritable DVD drives have been a standard feature of most PCs for the last three years or so, Windows XP's feeble recording feature never recognized DVDs as recordable or rewritable media. Windows Vista includes full support for recordable and rewritable DVDs with both its standard data-writing feature and its new Windows DVD Maker.

Use DVD Maker when you want to create a DVD that can play on a standard set-top DVD player. You can also view a DVD Maker-based DVD in Windows Media Player 11 or other playback programs with support for DVD-Video playback.

WINDOWS XPS PRINT AND DOCUMENT TECHNOLOGY

Adobe has long had a virtual monopoly on "digital paper" technologies with its PDF (Portable Document Format) file format, which can be created, edited, and viewed by Adobe and numerous third-party applications. However, PDF documents don't always print properly on some printers and can't always be viewed properly. Windows XPS (formerly code-named "Metro") print and document technology in Vista is designed to create digital documents suitable for both viewing and printing.

XPS is short for XML Paper Specification, and both XML and XPS support are standard features in the forthcoming Microsoft Office 2007. Windows Vista

Continued on page 20

As soon as you reinstall your applications and restore your file and settings from Windows XP, you should run a Complete PC Backup (Ultimate, Business, Enterprise editions only) to enable a "bare-metal" restore of your system.

includes the Microsoft XPS Document Writer as an installed printer. XPS documents can also be viewed in Internet Explorer 7.

Vista's Gaming Goodies

What a difference a decade makes! Whereas mid-1990s game developers largely avoided Windows 3.1 and only reluctantly embraced Windows 95, today's game developers use the latest versions of DirectX, making Windows an ideal platform for game support. With the advent of Vista, Windows unveils a new user interface for game access and better game support under the hood.

GAMES EXPLORER

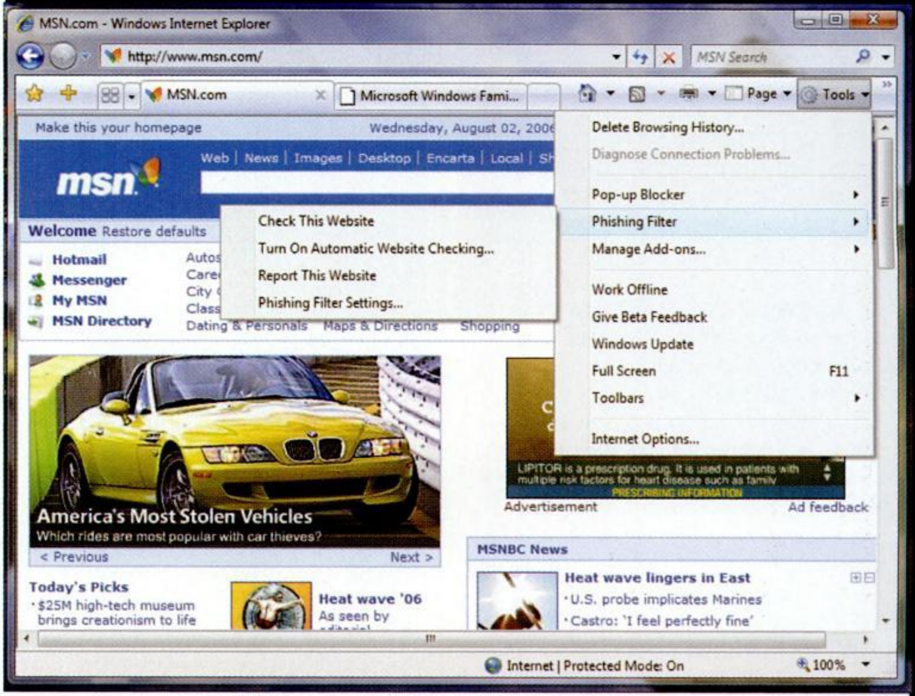
The brand-new Games Explorer puts unprecedented gaming access and control at your fingertips. You can view game ratings (see Figure 1.9), check your system's performance, activate parental controls, and sort games by version.

DIRECTX 10

Windows Vista is ready for the next generation of games with its incorporation of DirectX version 10. Instead of including older versions of DirectX as the current DirectX 9.0c and earlier versions have done, DirectX 10 permits DirectX 9.0 to run "side by side," enabling DirectX 10 to run faster than older versions. Of course, it's also necessary because DirectX 10 isn't directly compatible with previous version of DirectX. Note that DirectX 10 also includes Shader Model 4, which supports many more instruction slots, registers, texture samplers and instructions than Shader Model 3 for more 3D digital goodness!

DirectX 10 hardware won't be available for awhile, but when it arrives, you'll need Vista if you want to enjoy all the new goodies in DirectX 10. (For an in-depth look at DirectX 10, see story on page 84.)

Control Panel's Performance Information and Tools tests graphics, CPU, hard disk, and memory performance to help you find weaknesses in your hardware.


MSN.com - Windows Internet Explorer
http://www.msn.com/
MSN Search
MSN.com
Microsoft Windows Fami...
Page
Tools
Make this your homepage
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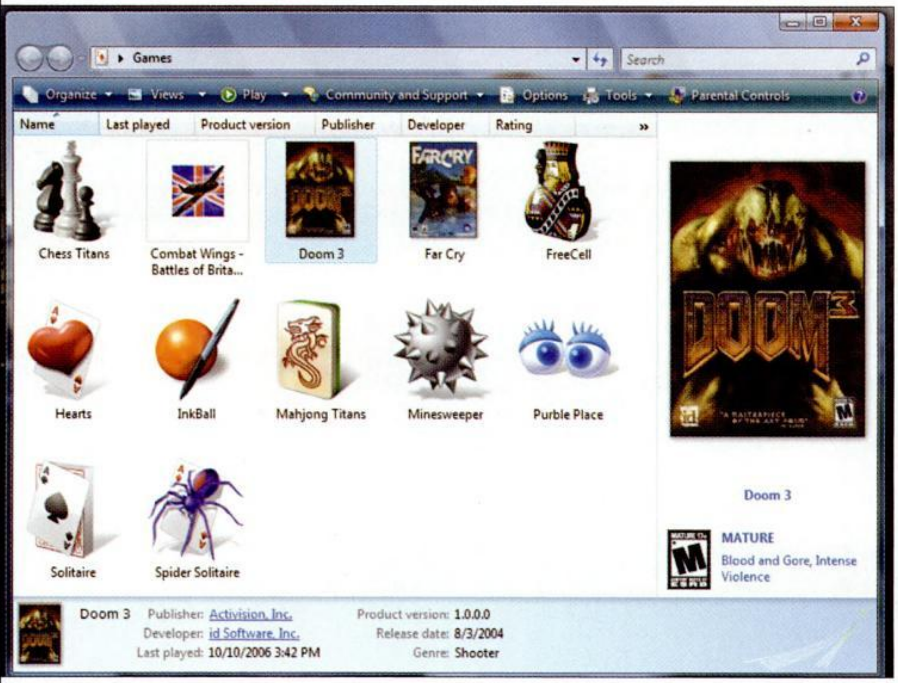
Welcome Restore defaults
Hotmail
Messenger
My MSN
MSN Directory
Check This Website
Turn On Automatic Website Checking...
Report This Website
Phishing Filter Settings...
Delete Browsing History...
Diagnose Connection Problems...
Pop-up Blocker
Phishing Filter
Manage Add-ons...
Work Offline
Give Beta Feedback
Windows Update
Full Screen F11
Toolbars
Internet Options...
America's Most Stolen Vehicles
Which rides are most popular with car thieves?
< Previous
Next >
Advertisement
Ad feedback
MSNBC News
Today's Picks
$25M high-tech museum brings creationism to life
Heat wave '06
Heat wave lingers in East
U.S. probe implicates Marines
Castro: 'I feel perfectly fine'
Internet | Protected Mode: On
100%

Figure 1.10 *Internet Explorer features an integrated phishing filter to help stop web-based fraud.*


Games
Search
Organize
Views
Play
Community and Support
Options
Tools
Parental Controls
Name
Last played
Product version
Publisher
Developer
Rating
Chess Titans
Combat Wings - Battles of Brita...
Doom 3
Far Cry
FreeCell
Hearts
InkBall
Mahjong Titans
Minesweeper
Purble Place
Solitaire
Spider Solitaire
Doom 3
MATURE
Blood and Gore, Intense Violence

Doom 3 Publisher: Activision, Inc.
Developer: id Software, Inc.
Last played: 10/10/2006 3:42 PM
Product version: 1.0.0.0
Release date: 8/3/2004
Genre: Shooter

Figure 1.9 *The Vista Games Explorer.*

Vista's Communications Applications

Windows Vista makes it even easier to stay in touch with friends, family, and co-workers via the Web, email, and fax with new and improved communications tools.

INTERNET EXPLORER 7

Internet Explorer 7 makes its debut as part of Windows Vista, bringing tabbed browsing, an integrated phishing filter, and additional security features for safer browsing to Vista users (see Figure 1.10).

WINDOWS MAIL

The much-unloved Outlook Express email client finally bows out in Vista. Its replacement, Windows Mail, doesn't break any new ground in its user interface, but it features enhanced message searching, better storage methods for your precious emails (no more corruption-prone databases!), and, most importantly, integrated junk mail and phishing protection to keep you safe from Nigerian 419 fraudsters and endless miracle medication ads.

WINDOWS CALENDAR

Swiping a page from Apple's iCal, Microsoft finally adds integrated, web-enabled calendaring to some Vista editions with Windows Calendar. Windows Calendar (see Figure 1.11) enables you to overlay calendars

Continued on page 22

1
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from other workers or family members to help eliminate conflicts and find free time for meetings, lunches, or fun family times. It also supports the popular .iCalendar format.

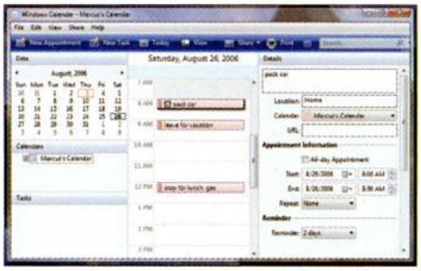

Windows Calendar - Marcus's Calendar
File Edit View Share Help
New Appointment New Task Today View Share Print
Date
August, 2006
Sun Mon Tue Wed Thu Fri Sat
Calendars
Marcus's Calendar
Tasks
Saturday, August 26, 2006
pack car
leave for vacation
stop for lunch, gas
Details
Location: Home
Calendar: Marcus's Calendar
URL:
Appointment Information
All-day Appointment
Start: 8/26/2006 8:00 AM
End: 8/26/2006 8:30 AM
Repeat: None
Reminder
Reminder: 2 days

Figure 1.11 *Use Windows Calendar to plan family, business, and leisure time.*

WINDOWS COLLABORATION

Some Vista versions include Windows Collaboration. Windows Collaboration enables you to have virtual meetings with co-workers or clients, no matter where they are located or how high the price for an airline ticket or a gallon of unleaded gasoline. You can share presentations and handouts with participants you invite via email or IM (see Figure 1.12).

WINDOWS CONTACTS

The new Windows Contacts Explorer makes it easy to keep track of family, friends, co-workers, and clients. Windows Contacts integrates with Windows Mail and telephone systems, and enables you to share folders with any contacts you choose.

WINDOWS FAX AND SCAN

If your fax-enabled dialup modem has been gathering dust inside your PC or on a shelf since you upgraded to broadband, Windows Fax and Scan (included in some versions of Vista) gives you a reason to connect it and use it again.

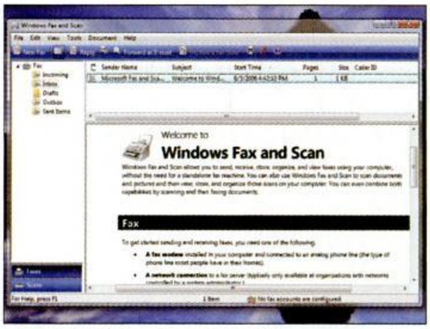
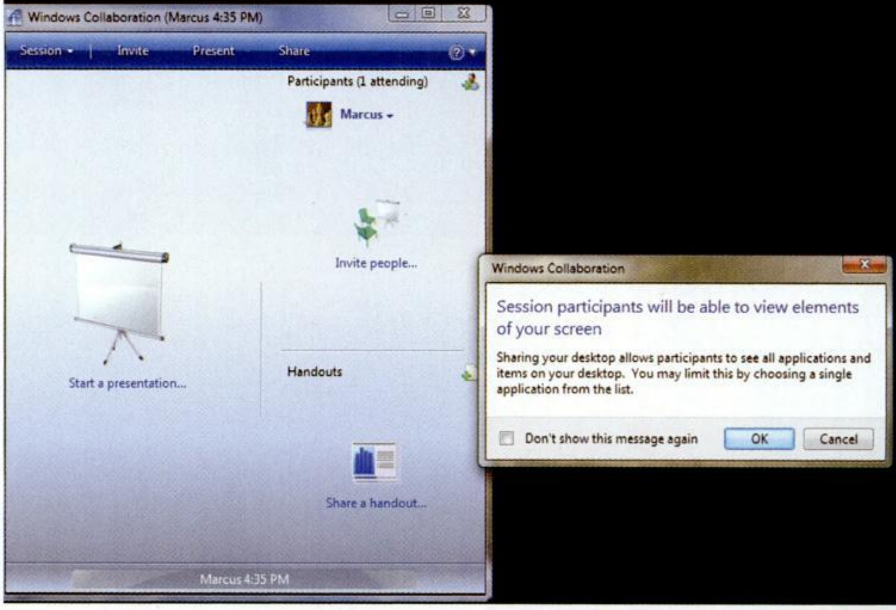

Windows Fax and Scan
File Edit View Tools Document Help
Fax
Incoming
Inbox
Drafts
Outbox
Sent Items
Sender Name
Subject
Start Time
Pages
Size
Caller ID
Welcome to
Windows Fax and Scan
Fax
Faxes
Scan
For Help, press F1
1 Item
No fax accounts are configured

Figure 1.13 *Windows Fax and Scan helps you send, receive, organize, and forward faxes.*

Forget to set the white balance on your digital camera? Too light? Too dark? Use the Fix menu in Windows Vista's Photo Gallery to make quick repairs to your pictures.


Windows Collaboration (Marcus 4:35 PM)
Session
Invite
Present
Share
Participants (1 attending)
Marcus
Invite people...
Start a presentation...
Handouts
Share a handout...
Marcus 4:35 PM
Windows Collaboration

Session participants will be able to view elements of your screen

Sharing your desktop allows participants to see all applications and items on your desktop. You may limit this by choosing a single application from the list.

☐ Don't show this message again

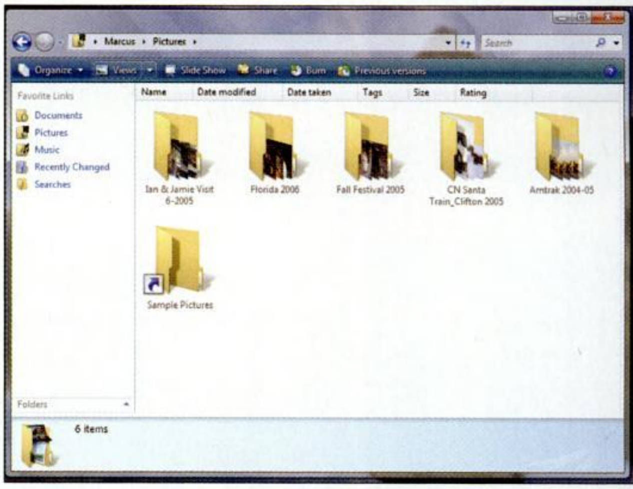
OK Cancel

Figure 1.12 *Windows Collaboration features display sharing for easy technology training and presentations.*

Windows Fax and Scan (see Figure 1.13) uses an Explorer-style interface to make sending and receiving faxes easier, whether you use a fax modem or a network with a fax server.

Vista's Supercharged File Management

Instead of opening My Documents and navigating through a tangle of folders to find pictures, music, and other goodies, Windows Vista adds specialized Explorer windows to the Start button that provide the specific features you need to enjoy different types of media. For example, the Pictures folder (see Figure 1.14) features Slide Show, Share, Burn, and Previous Versions buttons, whereas the Music folder replaces the Slide Show button with a Play All button. When you view folders in any Explorer window, you can see at a glance which folders are empty, which ones contain files, and which ones contain more files than others.


Marcus ▸ Pictures ▸
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Organize
Views
Slide Show
Share
Burn
Previous versions
Favorite Links
Documents
Pictures
Music
Recently Changed
Searches
Name
Date modified
Date taken
Tags
Size
Rating
Ian & Jamie Visit 6-2005
Florida 2006
Fall Festival 2005
CN Santa Train_Clifton 2005
Amtrak 2004-05
Sample Pictures
Folders
6 items

Figure 1.14 *The Pictures folder puts Photo Gallery slide show, CD/DVD burning, and other tools a click away.*

INSTANT DESKTOP SEARCH

Finding the file you want is easier than ever before. Thanks to Vista's real-time file indexing feature, you can search for, and find, all types of files in mere seconds. Instant Desktop Search is available from

Continued on page 24

Want to share your digital-photo collection with the technically challenged? Use the new DVD Maker feature to create a DVD of your favorite photos, complete with menus, a soundtrack, and fancy transitions.

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- ***More performance registry tweaks***
- ***Stops unneeded programs from running***

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Maximize Hard Drive Space! Quick and easy way to find and remove unnecessary files, making your drive run even faster.

Eliminate Registry Errors! Remove erroneous and leftover registry entries created by viruses, spyware, and incorrect program removal.

Revitalize System Performance! Increase your system performance by tweaking Windows settings.

PCPitstop.com/Max

More PC Pitstop Applications:

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ERASE

Many people are astounded about the amount of personal information Windows stores as you surf the web and work on your PC. Protect yourself from snoopers by clearing out this information on a regular basis.

- *Try our free privacy scan to see what secrets Windows may reveal about you.*

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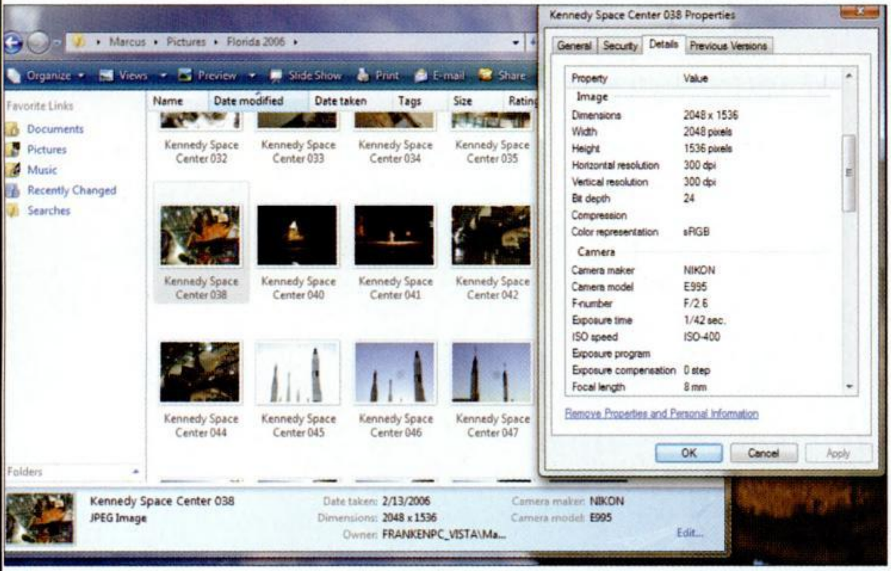
the Start button as well as from all Explorer windows. Type in text, and in seconds, matching files appear. Even other Windows apps, such as Windows Media Player 11, get in on the act, allowing you to use Instant Desktop Search to quickly locate the file you want to play or open.

It can be frustrating trying to find digital photos or other types of files in multiple folders. If you categorize your pictures by event, for example, pictures of Aunt Millie might be scattered across a dozen folders ("Uncle Joe's Funeral," "Aunt Millie's 60th Birthday Party," "Dad's 50th Birthday," and so on). Windows Vista's Virtual Folders feature makes it easy to organize files logically as well as physically.

Use Instant Desktop Search to look for files by name, tags (created with Photo Gallery or other Windows applications), or metadata. To find the same files again, save the search to create a virtual folder. When you open a saved search, you can group the files by physical location to help you find the files you need for your project.

METADATA AT YOUR FINGERTIPS

Metadata—the nitty-gritty details of digital camera settings, file formats, image resolution, digital music track length, and so on that is stored with various types of data files—has never been so easy to view as in Windows Vista. Select any file in any Explorer window, and basic metadata information is displayed at the bottom of the window. Click Edit, and the Details tab of the properties sheet for the file displays additional information (Figure 1.15).


Marcus ▸ Pictures ▸ Florida 2006 ▸
Organize
Views
Preview
Slide Show
Print
E-mail
Share
Favorite Links
Documents
Pictures
Music
Recently Changed
Searches
Folders
Name
Date modified
Date taken
Tags
Size
Rating
Kennedy Space Center 032
Kennedy Space Center 033
Kennedy Space Center 034
Kennedy Space Center 035
Kennedy Space Center 038
Kennedy Space Center 040
Kennedy Space Center 041
Kennedy Space Center 042
Kennedy Space Center 044
Kennedy Space Center 045
Kennedy Space Center 046
Kennedy Space Center 047
Edit...
General
Security
Details
Previous Versions
Remove Properties and Personal Information
OK
Cancel
Apply

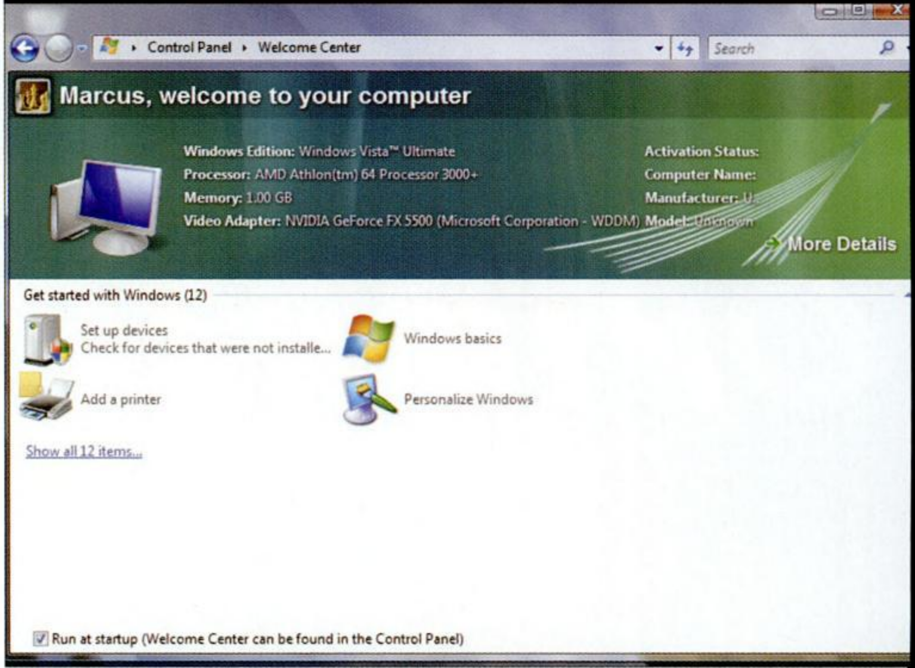
Kennedy Space Center 038
JPEG Image
Date taken: 2/13/2006
Dimensions: 2048 x 1536
Owner: FRANKENPC_VISTA\Ma...
Camera maker: NIKON
Camera model: E995

Kennedy Space Center 038 Properties

Property	Value
Image	
Dimensions	2048 x 1536
Width	2048 pixels
Height	1536 pixels
Horizontal resolution	300 dpi
Vertical resolution	300 dpi
Bit depth	24
Compression	
Color representation	sRGB
Camera	
Camera maker	NIKON
Camera model	E995
F-number	F/2.6
Exposure time	1/42 sec.
ISO speed	ISO-400
Exposure program	
Exposure compensation	0 step
Focal length	8 mm

Figure 1.15 *Viewing the camera settings and exposure metadata for a digital photo. Note how the main Pictures Explorer window provides basic information.*

Want to synchronize the contents of external drives, PDAs, and media players with Windows Vista? Forget the underwhelming Sync Center and download version 1.4 of SyncToy from **http://www.microsoft.com/windowsxp/downloads/powertoys/xppowertoys.mspx.**


Control Panel ▸ Welcome Center
Search
More Details
Set up devices
Check for devices that were not installe...
Windows basics
Add a printer
Personalize Windows
Show all 12 items...

Marcus, welcome to your computer

Windows Edition: Windows Vista™ Ultimate
Processor: AMD Athlon(tm) 64 Processor 3000+
Memory: 1.00 GB
Video Adapter: NVIDIA GeForce FX 5500 (Microsoft Corporation - WDDM)
Activation Status:
Computer Name:
Manufacturer: U
Model: Unknown

Get started with Windows (12)

☑ Run at startup (Welcome Center can be found in the Control Panel)

Figure 1.16 *The Windows Vista Welcome Center provides a roadmap to Vista's system configuration features.*

FAVORITE LINKS

As with any version of Windows, Windows Vista lets you store your data files anywhere. However, Vista gives you an additional reason to be conscientious about your folder choices. In addition to the dedicated Explorer links on the right side of the Start menu, each Explorer window features a left pane with Favorite Links to the current user's Documents, Pictures, and Music folders (refer to Figure 1.15). To quickly find a file you (or Windows Vista) just changed, open the Recently Changed virtual folder. To find saved searches (virtual folders), click Searches.

SYSTEM MANAGEMENT

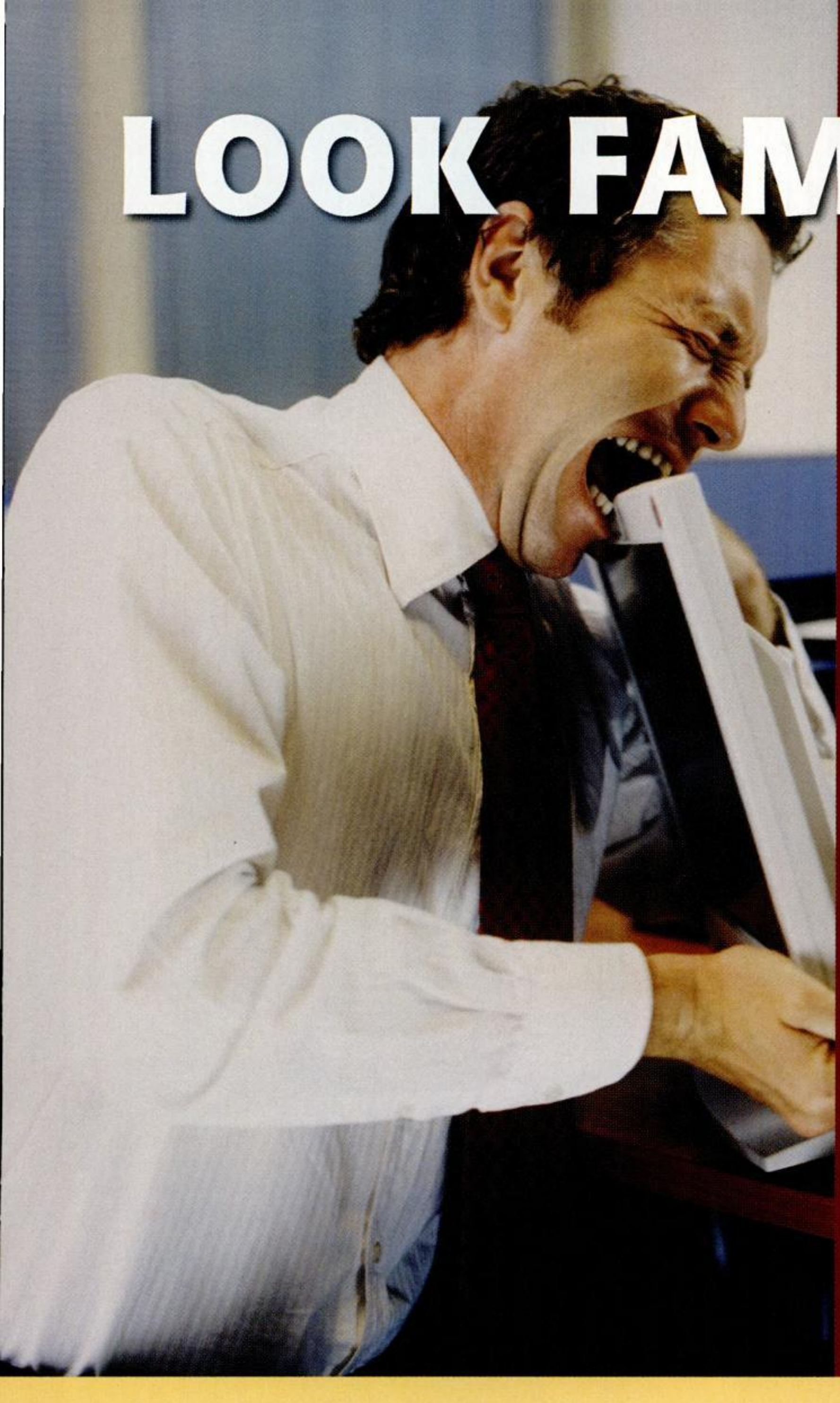
System management has never been as enjoyable as gaming, or even fiddling with your favorite data files. However, Windows Vista makes system management easier with a number of brand-new and improved management tools for system configuration, alternatives to the mouse and keyboard, migration, diagnostics, backup, and more.

WELCOME CENTER

The Welcome Center, like its Interstate Highway counterpart, provides a friendly and useful introduction to your destination. Use it to get a quick take on your system's configuration or to complete Windows setup. It shows up when you start Windows Vista for the first time (see Figure 1.16), and you can bring it back via the Control Panel whenever you need quick access to device setup, Windows Easy Transfer, or other configuration features.

Continued on page 26

LOOK FAMILIAR?



Life with Windows Vista and Office 2007 doesn't have to be this way...

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Microsoft Windows Vista
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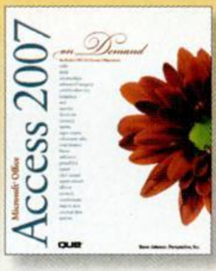
Microsoft Office Access 2007
on Demand
que

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Microsoft Office Excel 2007
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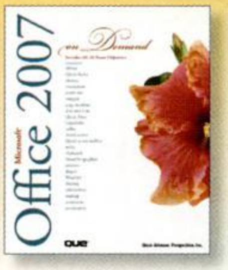
que

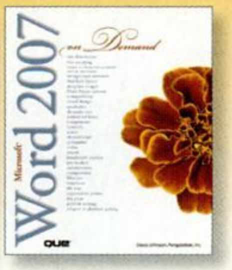
0-7897-3642-X


Microsoft Office 2007
on Demand
que

0-7897-3640-3

Microsoft Office PowerPoint 2007
on Demand
que

0-7897-3643-8


Microsoft Word 2007
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Continued from page 24

Go to System Properties, then Windows Experience Index: if your score is below 3.0, one or more of your major subsystems is slowing down the computer. Time to upgrade!

EASE OF ACCESS

For years, Windows has been primarily mouse driven, but Windows Vista provides alternatives. Open the Ease of Access Center (see Figure 1.17) in the Control Panel to enable a wide variety of tools, from onscreen keyboard to speech recognition.

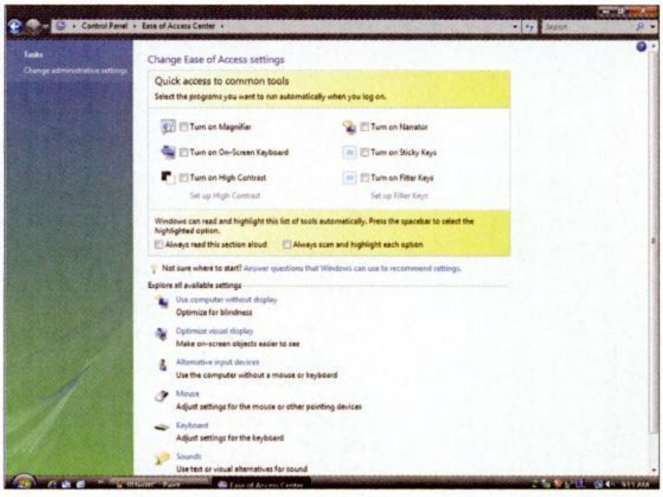
WINDOWS EASY TRANSFER

If you're "moving on up" from Windows 2000 or Windows XP, use Windows Easy Transfer (see Figure 1.18) to make the move easy. This replacement for the Windows XP Files and Settings Transfer Wizard moves user accounts, data folders and files, program settings, Internet settings and favorites, and email (settings, contacts, and messages). It supports a wide variety of connections and transfer methods.

PERFORMANCE DIAGNOSTIC CONSOLE

Windows Vista includes a number of enhancements to its management console. One of the most useful for performance-minded users is the Performance Diagnostic Console (see Figure 1.19). The Performance Diagnostic Console provides real-time information on CPU, disk, network, and

Continued on page 29



Change Ease of Access settings

Quick access to common tools

Select the programs you want to run automatically when you log on.

☐ Turn on Magnifier
☐ Turn on Narrator
☐ Turn on On-Screen Keyboard
☐ Turn on Sticky Keys
☐ Turn on High Contrast
☐ Turn on Filter Keys

Set up High Contrast
Set up Filter Keys

Windows can read and highlight this list of tools automatically. Press the spacebar to select the highlighted option.

☐ Always read this section aloud
☐ Always scan and highlight each option

Not sure where to start? Answer questions that Windows can use to recommend settings.

Explore all available settings

Use computer without display
Optimize for blindness

Optimize visual display
Make on-screen objects easier to see

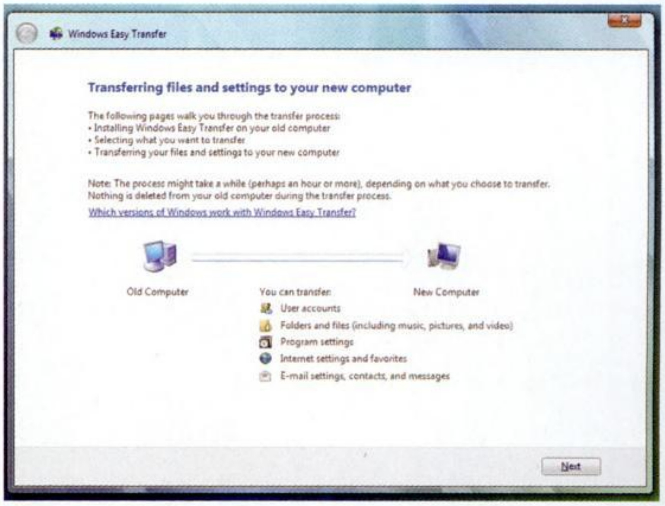
Alternative input devices
Use the computer without a mouse or keyboard

Mouse
Adjust settings for the mouse or other pointing devices

Keyboard
Adjust settings for the keyboard

Sounds
Use text or visual alternatives for sound

Figure 1.17 *The Windows Vista Ease of Access Center provides one-stop configuration for users who need alternatives to normal interaction features.*



Transferring files and settings to your new computer

The following pages walk you through the transfer process:
- Installing Windows Easy Transfer on your old computer
- Selecting what you want to transfer
- Transferring your files and settings to your new computer

Note: The process might take a while (perhaps an hour or more), depending on what you choose to transfer. Nothing is deleted from your old computer during the transfer process.

Which versions of Windows work with Windows Easy Transfer?

You can transfer:
- User accounts
- Folders and files (including music, pictures, and video)
- Program settings
- Internet settings and favorites
- E-mail settings, contacts, and messages

Figure 1.18 *The Windows Easy Transfer program helps you migrate from Windows 2000 or Windows XP to Windows Vista.*

Windows Vista Q&A

All your questions. Answered.

Q. *Is there any truth to the rumor that if I buy a copy of Windows Vista, I'll only be able to make a single large hardware upgrade before I'm locked out and told to buy a new copy of the OS? For example, what happens if I upgrade my motherboard and CPU, then six months later I upgrade my videocard? Then, a year later, I repeat the process. Will I be out of luck?*

Greg
San Francisco, CA

A. Fortunately, you won't be out of luck at all. While it's true that Microsoft did toy with the idea of restricting the number of times that you can install your copy of Windows Vista on a new machine to only one such move, the company has decided against this. As with Windows XP, you will be allowed to reinstall your retail copy of Windows Vista on your new machine, and adding new hardware will not put your product license in jeopardy. If, however, you buy a new PC with Windows Vista preinstalled, you will not be allowed to move that copy to another PC later, just as you couldn't with Windows XP.

Q. *If I buy one of the entry-level versions of Windows Vista and later decide that a more advanced version will better suit my needs, is there a way to upgrade without having to buy a new copy of the OS, and without reinstalling the OS from scratch?*

Bob Mason
Duluth, GA

A. Yes. Every Windows Vista disc, from Home Basic to Ultimate, comes with every version of Windows Vista on the disc. The product ID key will determine which version actually gets installed on your PC. Thanks to Anytime Upgrade, you can pay the difference to upgrade, and then you are given a new product ID key that will unlock the upgraded version. This does mean you'll have to run the installation process again, but it's a much simpler process than a complete installation, or even an upgrade.

Q. *How compatible is Windows Vista (really) when it comes to running content made for Windows 95 and Windows XP? Also, if I upgrade, will my old Windows XP hardware and device drivers work, or will I need to download new ones?*

Jody Berringer
Rochester, NY

A. The short answer is that Windows Vista is compatible with most software and other content made for Windows 95 and Windows XP. The long answer is, well, longer. Most ordinary applications (such as productivity apps and games) that you ran on your older PC will still run just fine in Windows Vista. System utilities and drivers, on the other hand, are trickier, because Windows Vista includes some radical changes at the system level, mostly for security reasons. This is particularly bad news for things like old antivirus utilities, which simply won't run in Windows Vista. Many device drivers, however, will work in Windows Vista even though they were designed for Windows 2000 or Windows XP. It's hit-and-miss, though, and you often won't know if your particular driver will work until you try it. Really.

Q. *My PC runs Windows XP just fine, but given that my system is a few years old, I'm wondering what sort of performance I should expect with Vista. Will it be comparable?*

Pat Gallagher
San Antonio, TX

A. Windows Vista's system requirements are a bit more demanding than those of Windows XP, but the operating system itself is designed to run faster than its predecessors. In our experience, systems with the minimum amount of RAM (512MB) and older processors—especially Celeron processors—tend to perform far slower in Windows Vista than in Windows XP. If, however, you have a gigabyte of RAM and a newer 64-bit dual-core processor, you'll probably find that Windows Vista actually starts up faster and runs faster than Windows XP did in many cases. For more on preparing your PC for Windows Vista, see *Making the Move to Vista* on page 49.

...continued from page 3

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As the story continues to unfold down here on Earth about what may or may not be happenin on the ship orbiting the planet, on g's for su if those people are to it will thanks to efforts

st place my even ter the re tion from hic ople taken. He was lea life e mechanic a com friend, Jen plore e wor It's a good for all of them up the that Jen reluctant to go.

Tommy has never been very int his ancestry, but if you ask his co they'll tell you that he holds those clo him very dear. He'll go to any length protect the people he cares fo

The only thing we know about the h ship that's circling us and stealing us random is that no one come there. We can only assume th being enslaved, killed or worse. is an option, and if you ask what worse than being killed, just think abou for a second or two.

To combat forces like this someone needs to be relentless, tough, fearless and quick. Tommy embodies all of these characteristics and more. He has always been athletic. Blessed with a physique that holds muscle and a mind that keeps him alert, the Cherokee mechanic is ready for anything. Rest assured, his skills are facing the ultimate test as we speak.

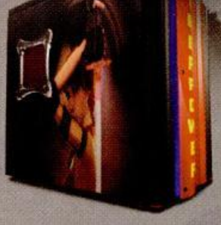
He's always been in search of the ultimate adventure. Those who worked at the roadhouse with Jen remember him coming in before quitting time. "He would sit at the end of the counter and look through books about big cities, small campgrounds, beaches and foreign countries. The whole time, you could see the sparkle in his eyes like he was imagining himself in those pictures," says a waitress named Dawn.

His grandfather once echoed those

ned w can not control w wants. I chos my life. He must ch s," he said.

Shortly before the abduction, Tommy began telling those close to him that his grandfather, now deceased, had been appearing to him. If this is true, it's likely that his grandfather is up there with him now acting as a spiritual guide and helping him to make all the right decisions.

It's safe to say that this is the adventure he was looking for, he's got more than he can handle right now. Telescope images of the space ship reveal a sinister exterior. If the outside looks that bad, it's safe to say there's no carnival going on inside. Except maybe for Tommy. This could be just what he's been dreaming of. It might just be what inspires Jen to tell him she's ready to see the rest of the world with him. If they can just make it home first.



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In a pinch, you can use Windows XP drivers for most types of hardware (except videocards). Download the latest drivers from your vendor's website.

memory usage along with reporting options. Use it to find bottlenecks in system performance.

MEMORY DIAGNOSTICS

RAM makes Windows work, and bad RAM makes Windows fail. To help you track down memory-related problems, Windows Vista includes a memory diagnostic program that runs before the Windows GUI starts. Memory Diagnostics provides a status message, and if any problems are found, it generates a report after you log on to Windows.

BACKUP AND RESTORE CENTER

All versions of Windows Vista include backup and restore tools that, finally, support rewritable DVDs as well as external hard disks. All versions include the File and Folder Backup for backing up data, and some versions also include the new CompletePC Backup disaster recovery image backup program (see Figure 1.20). Vista also supports the creation and restoration of shadow copies, which are previous versions of a file that has been modified or deleted.

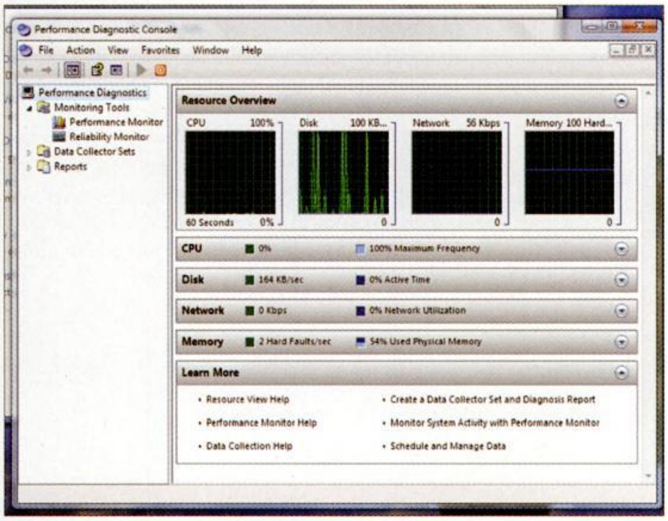
SECURITY IS JOB 1 IN WINDOWS VISTA

Previous versions of Microsoft Windows have been some of the biggest (and juiciest) security targets around. Windows Vista aims to change Windows' reputation of being easy to attack. Some of the changes, such as Windows Service Hardening and enhanced security for x64 versions of Vista, aren't visible to users, but there are plenty of visible clues that Windows Vista is a tougher nut to crack than Windows XP.

USER ACCOUNT CONTROL

Windows Vista enables you to set up all users as Standard Users with adequate rights to run software and configure their own desktops. However, when a standard user tries to make a change that could impact security, such as fiddling with user accounts or trying to install hardware, the User Account Control (UAC) dialog appears (see Figure 1.21), forcing the user to provide administrator-level credentials to proceed. No administrator password? No changes permitted!

Continued on page 30


Performance Diagnostic Console
File
Action
View
Favorites
Window
Help
Performance Diagnostics
Monitoring Tools
Performance Monitor
Reliability Monitor
Data Collector Sets
Reports
Resource Overview
CPU
100%
Disk
100 KB...
Network
56 Kbps
Memory 100 Hard...
60 Seconds
0%
0
0
0
Learn More
Resource View Help
Performance Monitor Help
Data Collection Help
Create a Data Collector Set and Diagnosis Report
Monitor System Activity with Performance Monitor
Schedule and Manage Data

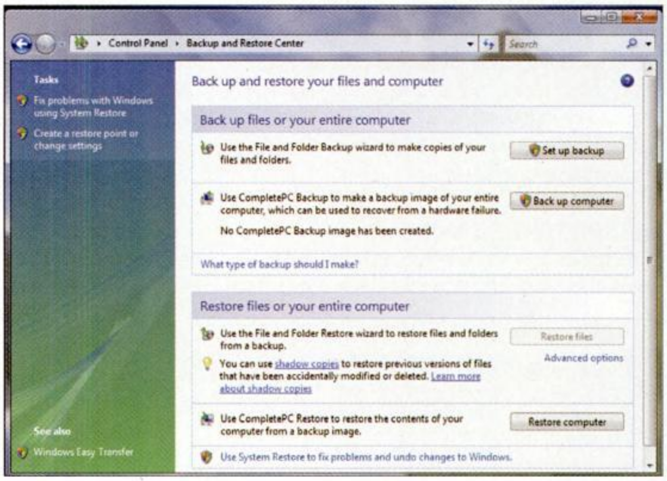
CPU 0% 100% Maximum Frequency

Disk 164 KB/sec 0% Active Time

Network 0 Kbps 0% Network Utilization

Memory 2 Hard Faults/sec 54% Used Physical Memory

Figure 1.19 *Use the Performance Diagnostic Console to instantly spot resource bottlenecks.ste*


Control Panel
Backup and Restore Center
Search
Tasks
Fix problems with Windows using System Restore
Create a restore point or change settings
See also
Windows Easy Transfer
Set up backup
Back up computer
Restore files
Advanced options
Restore computer

Back up and restore your files and computer

Back up files or your entire computer

Use the File and Folder Backup wizard to make copies of your files and folders.

Use CompletePC Backup to make a backup image of your entire computer, which can be used to recover from a hardware failure.

No CompletePC Backup image has been created.

What type of backup should I make?

Restore files or your entire computer

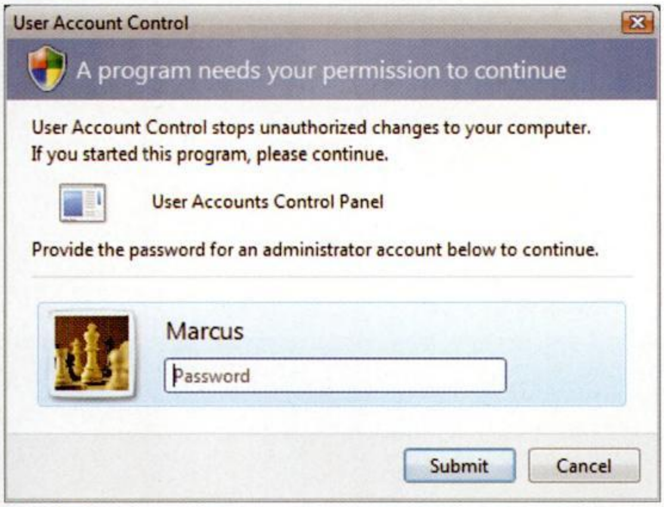
Use the File and Folder Restore wizard to restore files and folders from a backup.

You can use shadow copies to restore previous versions of files that have been accidentally modified or deleted. Learn more about shadow copies

Use CompletePC Restore to restore the contents of your computer from a backup image.

Use System Restore to fix problems and undo changes to Windows.

Figure 1.20 *Backup and Restore Center.*


User Account Control
User Accounts Control Panel
Submit
Cancel

A program needs your permission to continue

User Account Control stops unauthorized changes to your computer.
If you started this program, please continue.

Provide the password for an administrator account below to continue.

Marcus

Password

Figure 1.21 *User Account Control (UAC) stops unauthorized changes to critical features of Windows Vista.*

Vista Trivia

- An estimated **4,000 engineers** worked on the development of Windows Vista.
- Vista contains **50 million lines** of code.
- There are **six consumer versions** of Vista (including upgrades).
- **400 million new PCs** are expected to be shipped worldwide in the next two years.
- **368 million new** PCs are expected to be shipped worldwide loaded with Windows Vista.
- **36 builds** of Vista were released before release candidate 1 (RC1).
- **5 million testers** had access to RC1.
- Vista beta 2 was a whopping 3.5GB, and its online release is believed to be the **largest download in history**.

What's Missing from the Initial Vista Distribution

As you can see, a lot is new in Windows Vista. However, a few of the features planned for Vista's rollout won't be along until later for various reasons. These include:

- **Windows PowerShell (previously code-named Monad): An object-oriented command-line interface and scripting language. It requires .NET Framework 2.0.**
- **PC-to-PC Sync: A development of the Windows XP SyncToy file-synchronization program.**

It's expected that when these features are ready to go you'll be able to download them. At some point, they'll probably be added to retail versions of Vista.

WinFS, a new file system using relational database features, was originally promoted as a Windows Vista component, but will first show up in updates to SQL Server. It may eventually be included in a future version of Microsoft Office, but don't hold your breath while you're waiting to see WinFS migrate to the desktop.

PARENTAL CONTROLS

Windows Vista finally provides concerned parents with a truly effective parental control system. Use it to keep an eye on what the kids are doing online, block computer access at night or when you're at work (see Figure 1.22), prevent your ten-year-old from playing adults-only games, and block access to undesirable websites.

IE 7 PROTECTED MODE

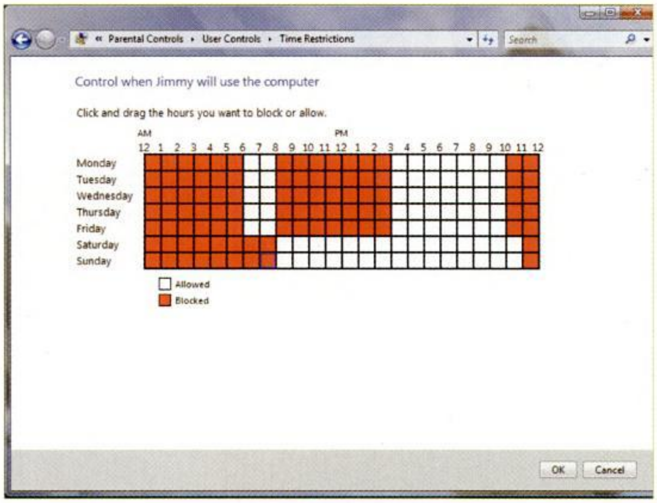
In addition to its new phishing filter, IE 7 now runs in protected mode by default. Protected mode enables standard users to install software needed to access some websites but blocks full access by that software to your system.

WINDOWS DEFENDER

Although Windows Defender was introduced as a downloadable add-on for Windows XP users, it's now a standard part of Windows Vista. The new Software Explorer feature (see Figure 1.23) provides boatloads of information about each program running on your system, while providing one-click access to Task Manager.

PROTECTING PROPRIETARY INFORMATION

For corporate users, especially those who use laptop computers, BitLocker drive encryption in some versions of Vista provides strong integrated disk encryption. A lost computer no longer means that sensitive data will be exposed. And USB device control implemented through Group Policy Editor can prevent "thumbdrive theft" of sensitive data. MPC



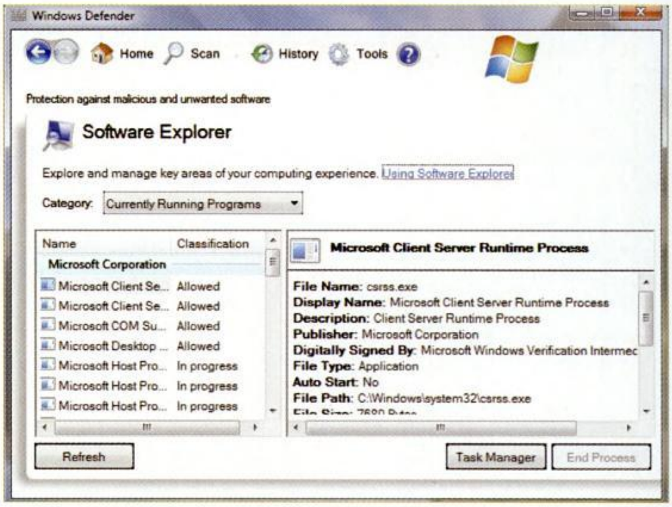
Control when Jimmy will use the computer

Click and drag the hours you want to block or allow.

	AM 12	1	2	3	4	5	6	7	8	9	10	11	PM 12	1	2	3	4	5	6	7	8	9	10	11
Monday	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	🟥	🟥
Tuesday	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	🟥	🟥
Wednesday	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	🟥	🟥
Thursday	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	🟥	🟥
Friday	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	🟥	🟥
Saturday	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	🟥
Sunday	🟥	🟥	🟥	🟥	🟥	🟥	🟥	🟥	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	🟥

☐ Allowed
🟥 Blocked

Figure 1.22 *Parental controls can put an end to unauthorized after-hours computer use.*



Protection against malicious and unwanted software

Software Explorer

Explore and manage key areas of your computing experience. Using Software Explorer

Category: Currently Running Programs

Name	Classification
Microsoft Corporation	
Microsoft Client Se...	Allowed
Microsoft Client Se...	Allowed
Microsoft COM Su...	Allowed
Microsoft Desktop ...	Allowed
Microsoft Host Pro...	In progress
Microsoft Host Pro...	In progress
Microsoft Host Pro...	In progress

Microsoft Client Server Runtime Process

File Name: csrss.exe
Display Name: Microsoft Client Server Runtime Process
Description: Client Server Runtime Process
Publisher: Microsoft Corporation
Digitally Signed By: Microsoft Windows Verification Intermec
File Type: Application
Auto Start: No
File Path: C:\Windows\system32\csrss.exe

Figure 1.23 *Software Explorer gives you details about every program running on your system.*

Vista supports Administrator and Standard user levels. Unlike Windows XP, in which a limited account was practically unusable, a Standard account in Windows Vista works fine for everyday use. We recommend most user accounts be given Standard-level privileges.

WWW.ZBOARD.COM
World of Warcraft
The Burning Crusade
EMOTE
F10
F11
F12
Chicken
Rude
Spit
Backspace
Enter
Chat
Shift
Ctrl
Ins
Home
Pg Up
Pitch ▲
View ▲
Chat ▲
Del
End
Pg Dn
Pitch ▼
View ▼
Chat ▼
Auto Run
Action Bar
Run / Walk
Action Bar
Show/ Hide UI
Screen Shot
Score
Battle Map
PVP FUNCTIONS
Inspect
Duel
Yield
PVP On/Off
Roll
Invite
Follow
SAY
PARTY CHAT
GUILD CHAT
YELL
WHISPER
RAID-FUNCTIONS
RAID CHAT
Raid Info
Ready Check
Raid Warning
Caps
Emote
Enabled
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LICENSED
BLIZZARD
ENTERTAINMENT
PRODUCT

ideazon.com/wow

DOMINATE
IDEAZON
PRECISION GAMING TOOLS

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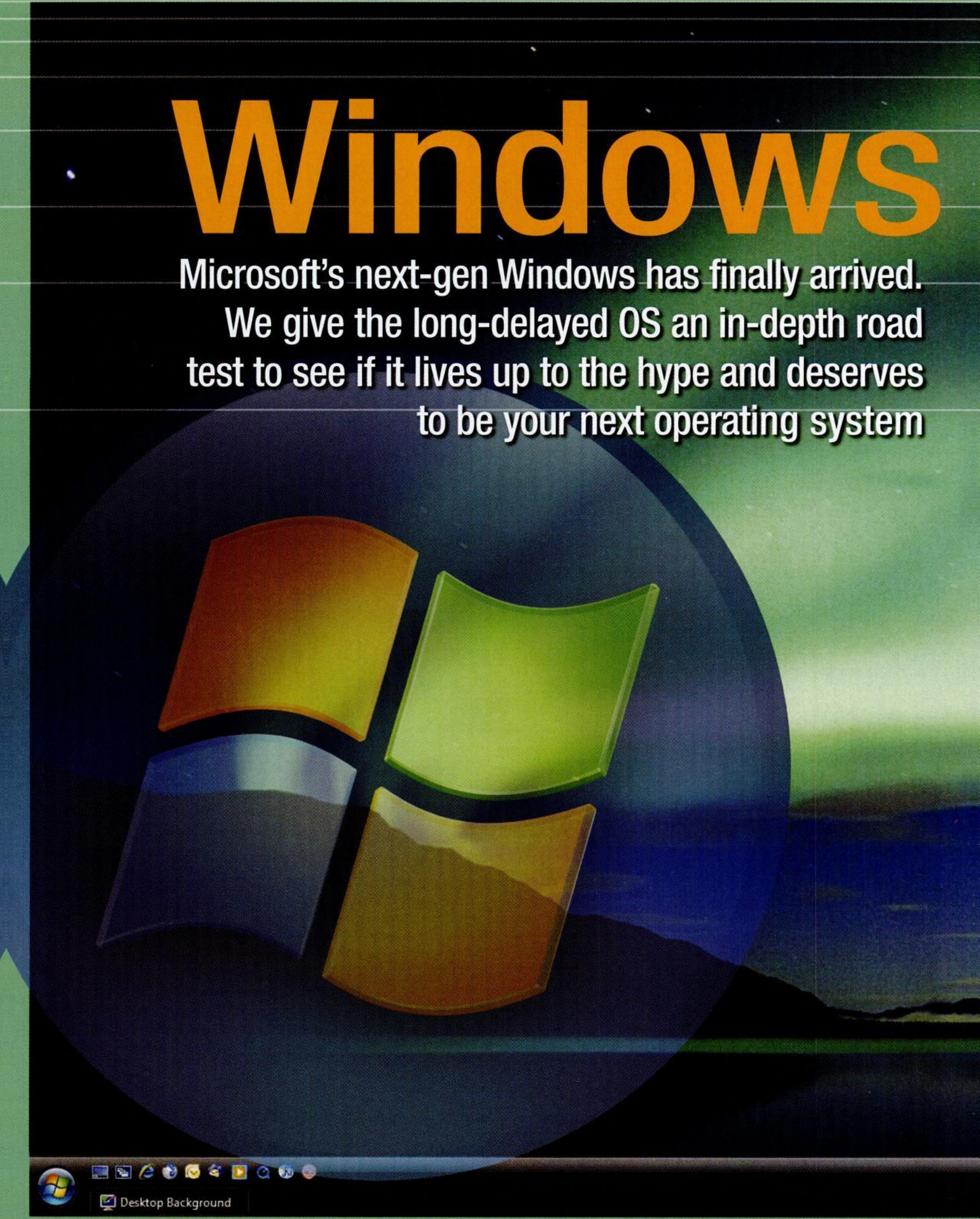
Windows

Microsoft's next-gen Windows has finally arrived. We give the long-delayed OS an in-depth road test to see if it lives up to the hype and deserves to be your next operating system



VISTA: FINAL VERDICT

BY WILL SMITH

It's been five long, virus-infested years since Microsoft launched Windows XP—an epoch in modern computing terms. We've been using XP for so long now that it's tough to even remember the dark days of Windows 98. At the end of January, Microsoft finally shipped Windows Vista to the masses, but we have plenty of questions about the nascent OS, and we're sure you do too.

Does Vista deliver enough of an improvement over XP to justify its high cost? Does Vista represent the kind of revolution that Microsoft has been touting, or is it just another ME-style incremental update? Do you need to upgrade now, or should you wait until your next hardware upgrade? Will Vista even run well on your current hardware? Is the OS good for gaming? With DirectX 10 exclusive to Vista, do we really even have a choice?

During the last six months, we've spent thousands of hours using Vista betas and release candidates, rebuilding machine after machine, and reinstalling the OS dozens of times, and we've spent the last two weeks hammering at the version of Vista Microsoft released to manufacturers. At long last we're ready to render our verdict on the fruits of Microsoft's labors.

VISTA'S VARIOUS VERSIONS

There are four flavors of Windows Vista available at retail for home and business users. Which one is right for you?

VISTA HOME BASIC	VISTA HOME PREMIUM	VISTA BUSINESS	VISTA ULTIMATE
No Aero Glass	Aero Glass	Aero Glass	Aero Glass
No Media Center	Media Center	No Media Center	Media Center
No Mobility Center	Mobility Center	Mobility Center	Mobility Center
No Xbox connectivity	Xbox connectivity	No Xbox connectivity	Xbox connectivity
No drive encryption	No drive encryption	Drive encryption	Drive encryption
Can't connect to Windows Domains	Can't connect to Windows Domains	Can connect to Windows Domains	Can connect to Windows Domains
Full version: $200 **Upgrade: $100**	**Full version: $240** **Upgrade: $160**	**Full version: $300** **Upgrade: $200**	**Full version: $400** **Upgrade: $260**

Continued from page 33

What We Like About Vista

There's a lot to like about Windows Vista. Here's the quick rundown of everything we dig about Microsoft's new OS

INTEGRATED APPLICATIONS

Vista comes with more new applications than any previous version of Windows, ever. In addition to updated versions of old standbys like *Windows Media Player*, *Windows Movie Maker,* and *Internet Explorer,* Vista ships with apps that handle photo management, disc burning, and even spyware protection. These applications provide a decent base level of functionality for everyone—giving every user the tools to use their PC to edit photos, listen to music, make and watch movies, and share their content with pals.

Basic functionality is great for the technically disinclined, but power users need more. Some of the included apps truly kick ass. The simplicity and power of the *Windows Calendar* program takes all the right cues from Apple's *iCal* program. It's easy to use, but powerful enough to help you categorize and keep track of all your day-to-day appointments and activities. In an unusual move for Microsoft, it even works with open standards, so you can publish your calendar online in non-proprietary formats.

Vista also includes improvements to tired old ponies, such as *Windows Media Player*, *Internet Explorer*, and *Outlook Express* (now called *Windows Mail*). *Media Player's* new stripped-down interface is a welcome change. Instead of removing functionality willy-nilly, menus have been consolidated and the entire interface was redesigned from the ground up. While we have a few minor gripes with *Windows Mail* (why don't filters work on IMAP accounts?), overall the new app is a welcome improvement over *Outlook Express.* Heck, even *Internet Explorer 7* is significantly better than the previous version. Granted, we won't be dropping *Firefox* anytime soon, but for *IE* diehards, 7 is a major advance.

There are definitely some low points as well. The *Photo Gallery* app omits basic features—such as resizing images—and the disc-burning app is woefully inadequate for anything more advanced than burning pictures to a disc. But getting even a couple of decent apps with the OS is a welcome surprise.

SECURITY ENHANCEMENTS

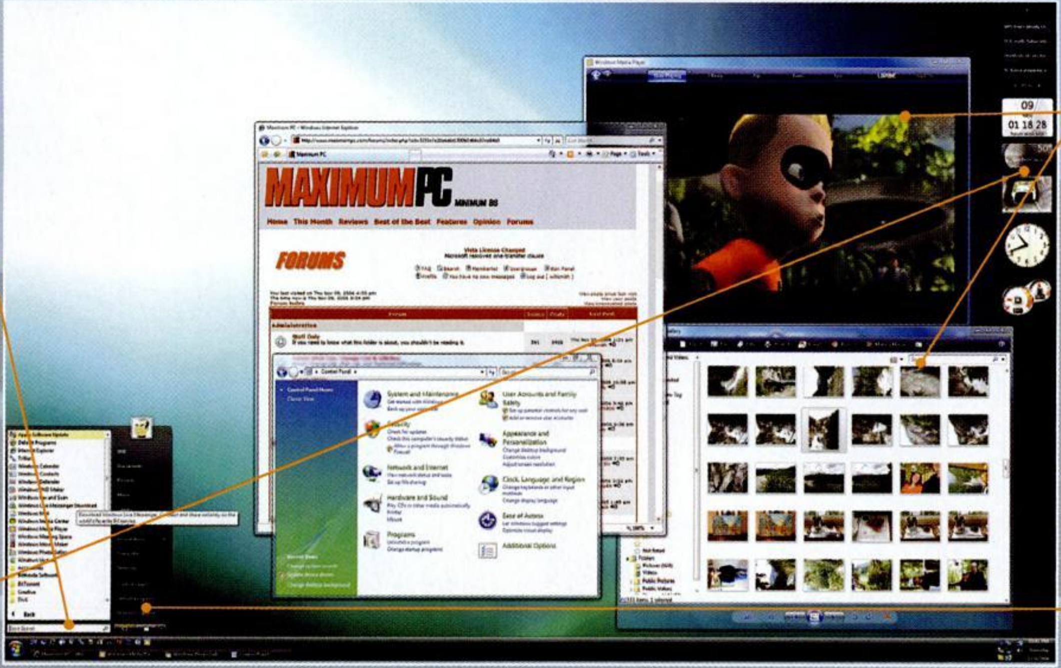
One of Microsoft's main goals with Vista was to staunch the never-ending tide of security problems that have plagued Windows XP. Part of the problem with XP is that crucial code was carried over from now-ancient versions of Windows. Microsoft completely rewrote the most vulnerable parts of the operating system, primarily to reduce the problems that lead to the most common types of attacks in XP, such as buffer overruns. We won't really know for several months or even years, however, whether the measures Microsoft has put in place—including several human and automated checks on every line of code—are adequate.

Microsoft also completely revamped the way permissions work in Vista. Unlike Windows XP, where virtually every user outside of a corporate environment ran as an Administrator, in Vista you should run as a limited user most of the time, and only run as an admin when an application needs to install or update itself. By locking down the permissions for the system folders, such as Program Files and Windows,

Continued on page 36

ANATOMY OF THE VISTA DESKTOP

Some features have to be seen to be believed. Here are a few of the most visually splenderific features in Vista



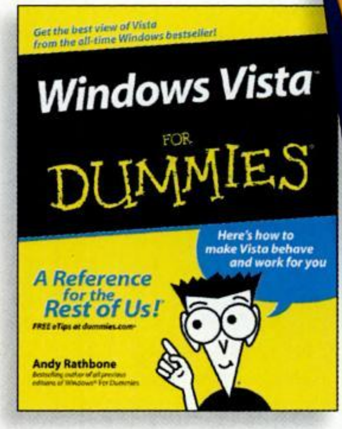
SEARCH: Vista's integrated desktop search engine has entry windows almost everywhere (our only complaint is that there isn't a search box readily available on the desktop). We frequently found ourselves typing an app name or control panel function because it was faster to search than browse.

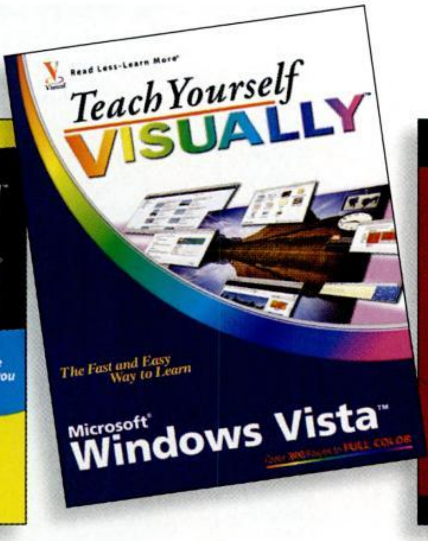
SIDEBAR: While the sidebar is the default home for Vista's Widget-like Gadgets, you can drag and drop them anywhere on your desktop as well.

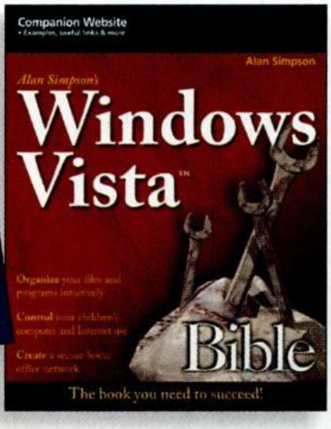
WINDOWS: Every window on a Vista machine is a transparent work of art, and because it's rendered using your 3D card's muscle, you'll never see any weird "hall of mirrors" redraw errors on Vista, even when you're playing video or using 3D applications.

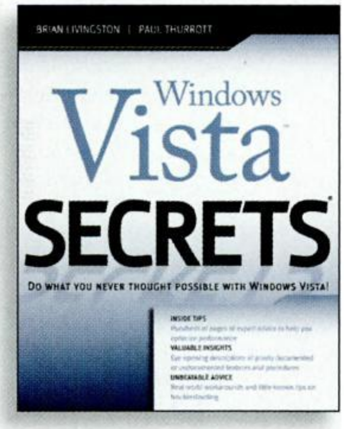
START MENU: The newly redesigned start menu puts all your applications in one "convenient" menu, instead of the nested pop-ups used in XP. It's still a pain in the ass to navigate, however, once you've installed 15 or so apps.

Vista ahead.

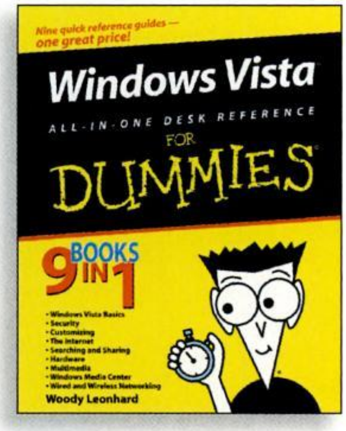

Get the best view of Vista from the all-time Windows bestseller!
Windows Vista
FOR DUMMIES
Here's how to make Vista behave and work for you
A Reference for the Rest of Us!
FREE eTips at dummies.com
Andy Rathbone

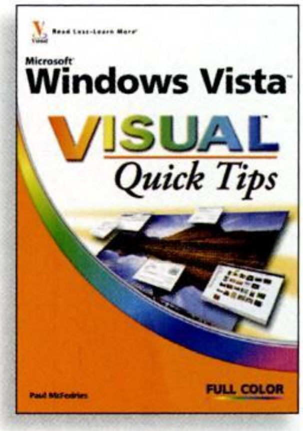

Read Less-Learn More
Teach Yourself VISUALLY
The Fast and Easy Way to Learn
Microsoft Windows Vista

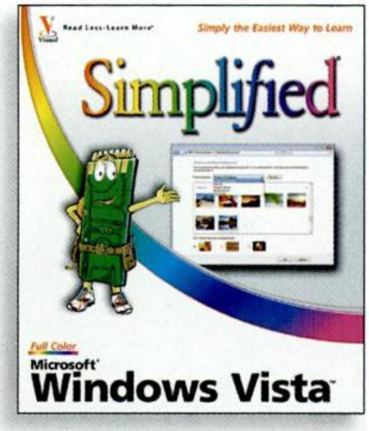

Companion Website
Alan Simpson
Alan Simpson's
Windows Vista
Bible
The book you need to succeed!


BRIAN LIVINGSTON | PAUL THURROTT
Windows Vista
SECRETS
DO WHAT YOU NEVER THOUGHT POSSIBLE WITH WINDOWS VISTA!

PC MAGAZINE
Oh, what a beautiful Vista
WINDOWS VISTA SOLUTIONS
HOW TO LOVE YOUR VISTA, FROM PC MAGAZINE
WHAT'S NEW?
PLUGGING LOOPHOLES
BOOST SPEED
MARK JUSTICE HINTON


Nine quick reference guides — one great price!
Windows Vista
ALL-IN-ONE DESK REFERENCE
FOR DUMMIES
9 BOOKS IN 1
Woody Leonhard


Read Less-Learn More
Microsoft Windows Vista
VISUAL Quick Tips
Paul McFedries
FULL COLOR


Read Less-Learn More
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Simplified
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wiley.com

Wiley opens up Windows, whether you already know a little—or a lot.

Continued from page 34

the potential negative impact of accidentally installing malware is much reduced. On XP, once you install one bad app, you've opened the gates to dozens of others. The bad app can (and will) install other malware applications, which will do the same thing in turn. Just a few hours after installing a simple weather-monitoring utility, your system could be infested with dozens of types of spyware and malware, rendering it unusable.

In Vista, even if you install one piece of malware, you'll be prompted before the installer can write to the Program Files directory. Once the install is done and the app runs, it will be running at a lower permission level, without access to C:/Program Files/. When it tries to install new malware, it will actually save those apps in a sub-folder of your Profile (C:/Users/username/Appdata/Local/VirtualStore). So the worst-case scenario is that while your user profile will be infected, your system won't be.

Vista contains some other nifty security tricks. Certain high-risk applications—*Internet Explorer* and *Messenger* are two—run at an even lower permission level than your other apps. They're explicitly prohibited from writing to any areas that aren't necessary for their operation. So even if an exploit infects *IE*, the infected application won't be able to do anything.

There are some compatibility problems with the new security measures—when you make changes this drastic, there are bound to be—but Vista looks like it will be a significant improvement to XP.

TELEMETRY

Another huge potential improvement to Vista is its integrated telemetry. Built into the new OS are tools that measure the time it takes your rig to perform common tasks. Everything from the time it takes to boot your PC to the launch time of your browser are constantly tracked. The idea is that whenever something causes Vista's performance to nosedive, you'll be able to pinpoint a new application or driver as the culprit, and fix the problem immediately. The OS also tracks crashes, so if your machine starts to show behaviors that could indicate a larger problem, you will hopefully get an early warning.

The Performance and Reliability tracking system isn't perfect. It doesn't seem to discern the difference between serious application crashes—say a printer driver repeatedly crashing—and less significant crashes, such as a media player that chokes on a bad file. However, any extra tools to help troubleshoot PC problems are certainly welcome!

AERO GLASS

We've already talked ad nauseum about Vista's new interface. Now that the video drivers are maturing, we're going to say that it's pretty awesome—especially for users with multiple displays. The new Aero Glass GUI works with most any graphics card that supports Direct3D 9 pixel shaders; we've tested it with everything back to a Radeon 9500, with decent results.

What's the hard benefit? Accelerated video is rendered directly to the screen's frame buffer; Vista doesn't use kludgey overlays that cause tearing and can't be moved easily. In addition, because the new renderer was created from the ground up to work with multiple displays, 3D acceleration and video playback both work on your secondary and even tertiary screens.

MOBILITY CENTER

For years, our favorite laptop manufacturers have integrated all the power-consumption and road-warrior options in one handy control panel. With Vista, that functionality is part of the package. Adjust everything from your screen's brightness, to your Wi-Fi card's status, to the display you're using, from one handy Windows control panel.

Vista also improves the low-power modes supported by most PCs. Instead of separate Suspend and Hibernate modes, Vista includes one hybrid Sleep mode. When the PC first goes to Sleep, it will drop to whatever Suspend mode it supports. Then, after a specified period of time, Windows will automatically Hibernate, just the way you'd expect it to. When you return to your PC, it will boot up in much less time than it would from a cold restart.

WHIZ-BANG FEATURES

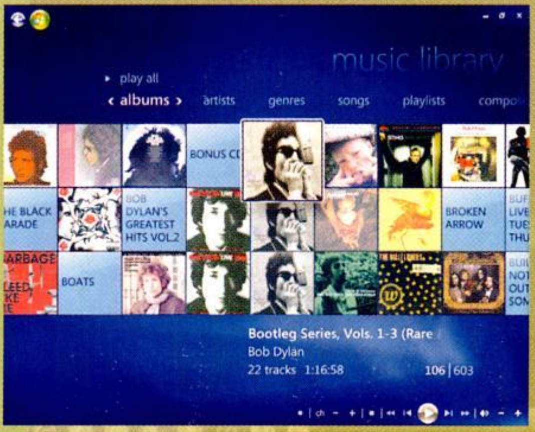
One of our major complaints about Vista is its lack of bling. Transparent window edges are cool, but they're not *sexy*. While we'd like to see a little more Minority Report-style badass interface design, Vista isn't completely devoid of whiz-bang features. It has the Sidebar, a Konfabulator clone, complete with a wide selection of available widgets to tell you everything from the current weather outside to the launch date of the Nintendo Wii in Europe.

Then there's the secondary SideShow LCD. We've already seen a couple of laptop prototypes that sport small external screens. Vista is able to display Sidebar gadgets on that screen, even if the PC is in standby mode. We haven't had an opportunity to test the technology yet, but we expect to see the first SideShow-enabled laptops shipping in January, and we'll give you the full details then.

DIRECTX 10 GAMING

We dedicated an entire feature this issue to DirectX 10 gaming (see page 88), so we won't repeat too much here. Suffice it to say, the only place you'll be able to play DirectX 10 games in their full glory is on Vista. Games will work on XP in fallback DirectX 9 modes, but eventually, all gamers are going to be forced to upgrade to the new OS.

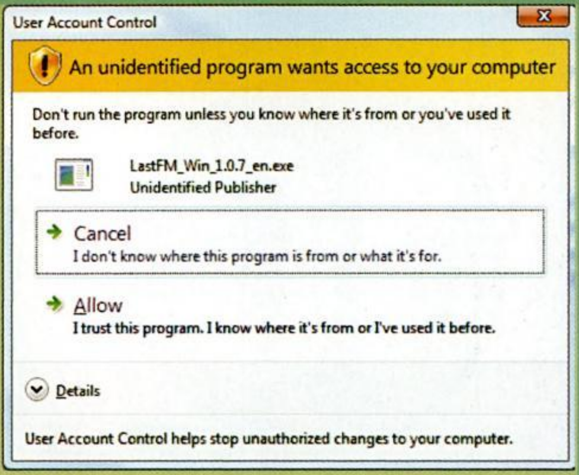
MEDIA CENTER



Media Center is encumbered with tons of unpleasant DRM, it automatically deletes some recordings after a few weeks, and it's not the most intuitive 10-foot interface. But the new version of Media Center is built into Vista Home Premium and Ultimate, so it's tough to argue with free.

What We Hate About Vista

Of course, Microsoft's new OS isn't perfect. Here are the things in Vista that concern us



User Account Control

An unidentified program wants access to your computer

Don't run the program unless you know where it's from or you've used it before.

LastFM_Win_1.0.7_en.exe
Unidentified Publisher

➔ Cancel
I don't know where this program is from or what it's for.

➔ Allow
I trust this program. I know where it's from or I've used it before.

Details

User Account Control helps stop unauthorized changes to your computer.

User Account Control is a decent idea, but we question some aspects of its implementation and wonder if it will really curb the malware problem.

USER ACCOUNT CONTROL GOOFINESS

While User Account Control will help constrain malware, we're not thrilled with its actual implementation. For one thing, it's annoying. Some application installers—hello *iTunes*—prompt you three times for Administrator rights during the install process. Whether this is Microsoft's fault or Apple's, it shouldn't work this way.

Furthermore, requesting Admin credentials with a simple Allow/Don't Allow prompt strikes us as a little insecure. On most other OSes with similar permission schemes, when you need to elevate an application to Admin status, you need to type in either your password or the Admin password. Most users—think: your mom—will quickly be trained to simply click the Allow button whenever it pops up. These are the people who desperately need to be protected from spyware.

Then there are the incompatibility issues. Applications as common as *Punkbuster*—a popular anti-cheat program for online games—have problems running properly in Vista with UAC enabled. When you connect to a game server in a *Punkbuster* app under Vista, if the app isn't running as an Admin, the server will kick you for running with *Punkbuster* disabled. In order to play *Punkbuster* games, you always have to run the game in question as an administrator.

UPSELLING AN OS SUCKS

We don't like upsells. We don't want the extended warranty, we don't super-size our order, and we sure as hell don't want three different versions of Windows for consumers. We only want one, and we want it to offer all the stuff we need.

By bundling features like Media Center, domain connectivity, and Aero Glass with the higher-priced versions of Windows, Microsoft is doing nothing more than creating extra revenue opportunities for an already overpriced product. Windows Vista Ultimate costs $400 (Home Premium costs a mere $240). There are lots of little differences, but the main distinction is that Ultimate can connect to a Windows Domain and Home Premium can't. Sure, Ultimate is going to come with ephemeral "Vista Ultimate Extras," but the few Microsoft has unveiled so far have yet to impress us. Naturally, it will be simple to upgrade Vista from inside Home Basic or Premium, if you're willing to shell out the extra cash.

The pricing issue becomes even more insane when you look at the cost of other OSes. Linux is free. Apple's OS X costs as little as $40. Is Windows really worth that much more cash than the competitors?

BIG BROTHER SHENANIGANS

Dear Microsoft,

We've been using *Firefox* for the better part of three years now. Same for *Thunderbird*. Our bookmarks are in *Firefox*, and our email is in *Thunderbird*. If you really want us to switch back from those products, you need to make it easy for us, by including filters and tools to convert our mail and bookmarks from your competition.

Also, we don't appreciate the inclusion of DRM.

Sincerely,
Maximum PC

ANEMIC INTEGRATED APPS

We've already mentioned the Photo Management app that won't resize photos, but we're also perturbed by the instant messaging app that only supports Microsoft's IM protocol, and the movie making program that only outputs to Microsoft's video format. We're not asking for support for Apple's formats, we'd just like to be able to read and write industry standard formats, such as MPEG-2 and Divx, and talk to AIM users.

The Bottom Line on Vista

Sure, Microsoft took three years longer on Vista than it should have, and there are definitely some serious problems with the OS, including Microsoft's less-than-generous pricing scheme and potential DRM hassles. That said, anyone who wants to play DirectX 10 games—such as *Crysis, Hellgate: London*, and *Flight Sim X*—will eventually be forced to abandon XP. And frankly, there's a lot to like about Vista. We love the advanced multi-monitor support, we dig the responsiveness of the Aero Glass UI, and we don't mind the User Access Control hassles too much.

Vista isn't the best OS in every category—OS X handles application management and permissions better, Linux is lighter-weight and comes with a nearly infinite supply of fully functional applications—but it is definitely a leader in a few categories, namely gaming and desktop rendering. While it's true that we could be stuck with much worse, we also see lots of room for improvement.

WINDOWS VISTA

7

+ HOBSON'S CHOICE

More secure, better performing UI, good array of integrated applications.

− SOPHIE'S CHOICE

Some security features seem goofy. We waited five years for this?

10 REASONS YOU NEED VISTA TODAY!

The next version of Windows is here, but should you consider an immediate upgrade? What does Windows Vista offer that can genuinely improve your PC experience? Plenty!

Vista is a better, more secure, and much prettier version of Windows. What's not to like about all that? Put on your tux or dress and book a stretch limo to join us at the "Why would I upgrade to Vista?" Awards as we reveal—in reverse order—the top 10 reasons for picking up Microsoft's new OS.

Are you the "glass is half-full" type? Then let the Angel Fish be your guide!

AND 10 REASONS YOU DON'T

Brace yourself. Microsoft is readying its largest marketing campaign ever to convince you that you should switch to Vista. But for most people, there's no reason to rush out to buy the fledgling operating system.

Vista isn't perfect right now, but it will improve with time. Hardware and software vendors will introduce better drivers and compatibility patches.

New applications will be written with Vista in mind. After several months, you'll be able to get new versions of crucial software, such as antivirus apps, as well as updates to your current products.

If early adoption isn't everything to you, then let the Devil Fish be your guide!

10 Parental Controls

Keep in charge of your kids' web surfing

If you have children, then Vista's new Parental Controls Control Panel will give you more control over how they use the computer. It works in conjunction with your child's user account, so you need to set this up first; once that's done, you have four types of restriction you can apply to their PC use.

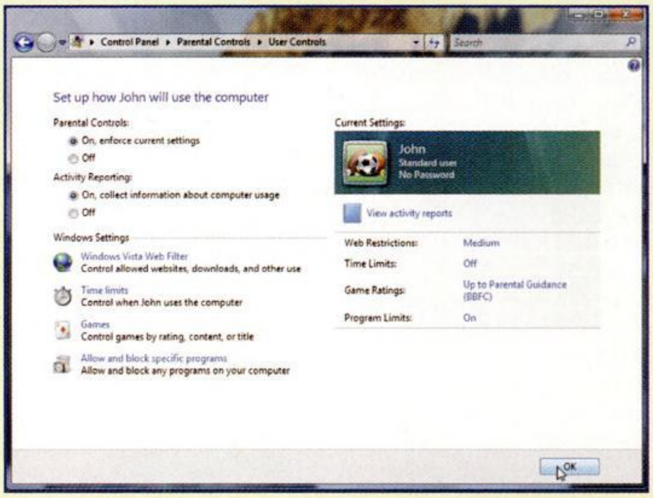
The most general one lets you set times of day when your child can use the PC. Vista will log them out automatically when their time is up or refuse access if they attempt to log on outside of these hours.

The Windows Vista Web Filter enables you to restrict Web-site access based on 11 filters, or can go one step further and block everything except child-friendly Web sites or those sites that you've manually approved. You can also block file downloads for that user to prevent them from accidentally (or otherwise) downloading harmful software.

An increasing number of games come with cinema-like ratings, and the Game Controls make it possible to restrict access to games based on their ratings. Not all games subscribe to this system, so Vista enables you to create a custom list of blocked and allowed games, too.

Finally, you can restrict access to specific programs that you've installed on your PC. Choose this option, and a list of recognized apps appears; you'll need to tick them to give your child access. If a particular program isn't listed, just click Browse to locate it.

Vista's Parental Controls tool is basic compared to established third-party utilities such as CyberPatrol. However, it does give you scope for restricting your kids' access to the PC and Internet. You can also compile activity reports of what your kids are viewing.



Set up how John will use the computer

Parental Controls:
● On, enforce current settings
○ Off

Activity Reporting:
● On, collect information about computer usage
○ Off

Windows Settings
Windows Vista Web Filter
Control allowed websites, downloads, and other use
Time limits
Control when John uses the computer
Games
Control games by rating, content, or title
Allow and block specific programs
Allow and block any programs on your computer

Current Settings:
John
Standard user
No Password
View activity reports

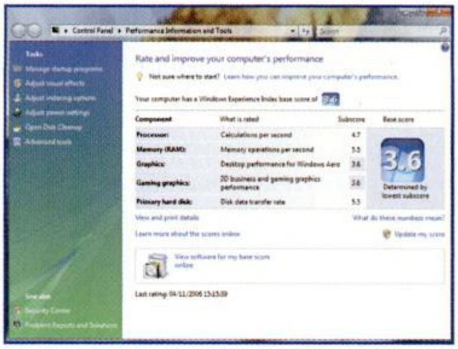
Web Restrictions: Medium
Time Limits: Off
Game Ratings: Up to Parental Guidance (BBFC)
Program Limits: On

Make sure little Janet and Johnnie are kept in check with Vista's Parental Controls.

Continued from page 39

9 Vista's Benchmarking Tools

Can your system handle it?



Control Panel ▸ Performance Information and Tools

Rate and improve your computer's performance

Your computer has a Windows Experience Index base score of 3.6

Component	What is rated	Subscore	Base score
Processor:	Calculations per second	4.7	3.6 Determined by lowest subscore
Memory (RAM):	Memory operations per second	5.5	
Graphics:	Desktop performance for Windows Aero	3.6	
Gaming graphics:	3D business and gaming graphics performance	3.6	
Primary hard disk:	Disk data transfer rate	5.5	

Last rating: 04/11/2006 13:15:59

The Performance Information tool will tell you if your PC is mighty enough for Vista.

Windows Vista takes system requirements to an entirely new level. So much so, in fact, that certain parts of the OS—such as the transparent new Aero interface—simply won't run if your PC isn't up to the task.

The Windows System Assessment Tool is effectively designed to make sure Vista doesn't make more demands of your PC than it's capable of delivering, but it also provides you with a means of benchmarking your PC spec against the requirements for Vista.

The program takes five measurements of the following: processor, RAM, graphics, gaming graphics, and hard-drive transfer rates. It gives each a score from one (low) to six (high), and then delivers a base score, which is basically the worst score in the list. If you score one or two, that means your PC can do most basic tasks in Vista. That said, however, you can forget about any kind of heavy multimedia tasks—and that also includes running the Aero interface. A score of three is good enough for Aero, but it's the system will probably struggle with really high-end tasks, such as displaying HD-resolution TV. If your system achieves a score of four or five, it's a high-end computer that will manage with Windows Vista. In the future, new powerful PCs will push this maximum score even higher.

Yeah, But...

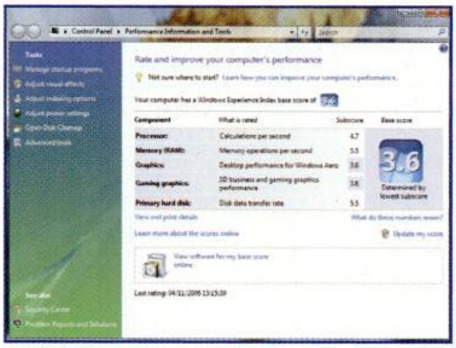
Vista Requires a Really Powerful Machine

This probably won't be a problem for most *Maximum PC* readers, but many folks who don't play games will find their machines challenged by Vista's system requirements. That Dell laptop Aunt Edna bought for $500 last year is going to struggle with this OS. While a simple RAM upgrade will probably get the machine running, it almost certainly won't be sufficient to enable Vista's bells and whistles.

For once, Microsoft's published minimum requirements for a new OS are reasonably accurate. The recommended system has a 1GHz or faster CPU with 1GB of RAM and a 128MB Pixel Shader 2.0–compliant graphics card, which is a fairly realistic minimum spec to get a decent experience with Vista. At *Maximum PC*, we aren't going to bother installing Vista on anything slower than 2GHz: we'd rather have a fast XP install than a slow Vista machine. In short, if your machine isn't up to snuff, take the next couple months to get it there before installing the new OS.

8 Multimedia Muscle!

Vista's digital capabilities don't disappoint



Control Panel ▸ Performance Information and Tools

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Gaming graphics:	3D business and gaming graphics performance	3.6	
Primary hard disk:	Disk data transfer rate	5.5	

Last rating: 04/11/2006 13:15:59

Finally, you can burn DVD movies directly from Windows Vista using its built-in DVD Maker tool!

Windows Vista falls over itself to provide an outlet for your music, video, TV, and images. Note that most of the following features will be presented only in Vista Home Premium or Vista Ultimate Edition.

Windows Movie Maker now dovetails in with a new tool called Windows DVD Maker to make it possible to capture, edit, and burn your home-movie footage to DVD. DVD Maker works with photos and edited video footage, and allows you to add a simple menu to your finished work that will work in any standard DVD player.

There will be no Vista Media Center Edition because the Media Center view is now standard with Vista Home Premium and above. This means that you can add a TV tuner to your PC and turn it into a PVR unit; you can also control this system and other media via remote control (available separately or with your TV tuner).

In Windows Explorer, a new slideshow option will appear whenever you open a file containing images. You'll also notice additional information displayed about photos, video, and music files to help you identify them. This metadata is fully editable directly from here, and you can add keywords (tags) to images to help you identify them more quickly during future searches.

Continued on page 42

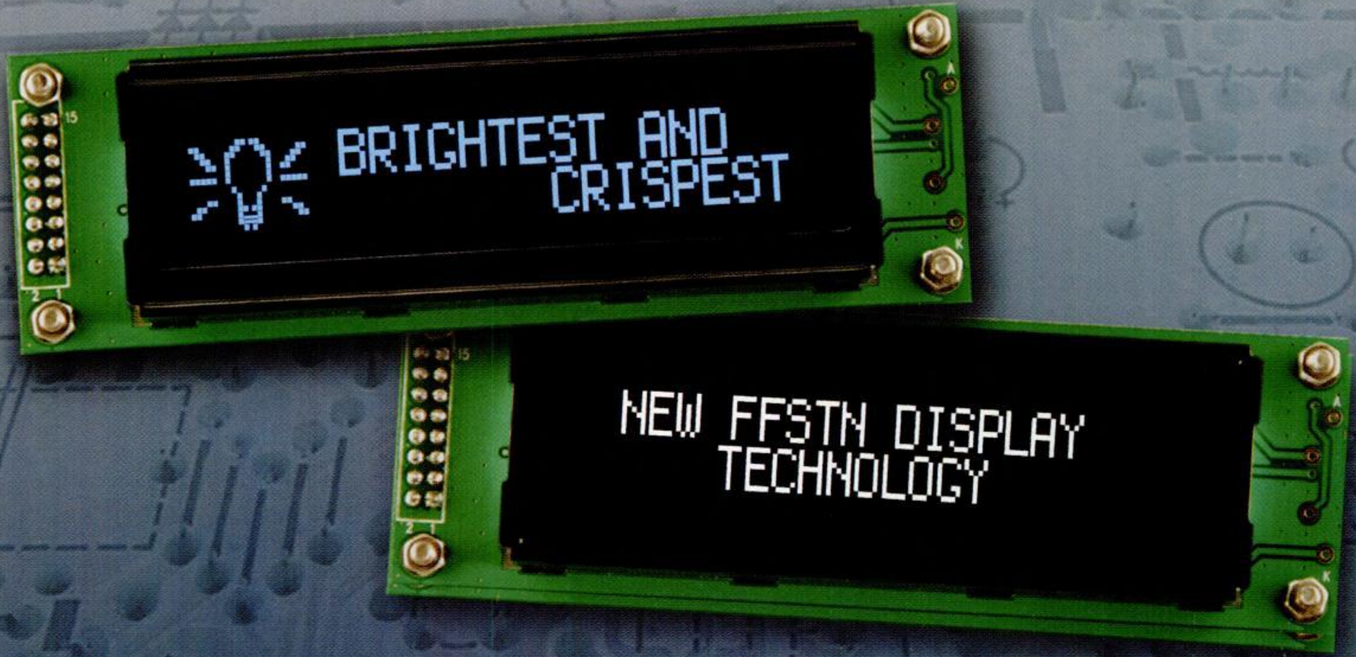
Yeah, But...

What About Application Incompatibilities?

Even as we speak, literally dozens of applications don't work properly with Vista. And we're not talking about garage-developed apps—we mean high-profile programs such as *iTunes*, disc-burning apps, and pretty much anything that has to do with DVD-ripping or -viewing. And virtually any Java-based app that bundles the Java runtime automatically kicks the desktop back to Vista's Basic mode, obviating the performance benefits you get from running Aero.

At launch, *iTunes* was among the apps that Vista didn't play nicely with.

INTRODUCING
FFSTN
LCD DISPLAY TECHNOLOGY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CRISPEST
NEW FFSTN DISPLAY
TECHNOLOGY

FFSTN 4X20 DISPLAYS COMING IN MARCH!

- High efficiency polarizer maximizes contrast for the brightest and crispest LCD display
- A variety of color options to choose from, such as white, blue, yellow, green and amber
- Text becomes far more visible with a darker background compared to regular LCDs
- Capable of a temperature range from –20 °C to +70 °C

MATRIX ORBITAL

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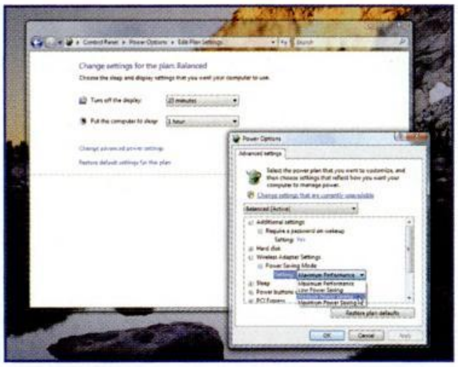
7 Power Management

Get Vista running to your specifications



Fine-tune power-management settings with Vista's extended Control Panel.

Yeah, But...

Vista Is Crazy-Expensive!

Vista is the most expensive consumer operating system we've ever seen. Let's take a look at the pricing. Home Basic, which doesn't include the fancy Aero Glass interface, costs a whopping $200 for a full version. Home Premium costs $40 more, and Ultimate costs an astounding $400. Why spend that much today on a less-polished product when you can wait a few months and have a much better experience for the same money?

The good news is that Ultimate has a bunch of features that the majority of power users won't need. The Premium version should include everything most people will require for home use—assuming you don't run Group Policies on your home domain.

Naturally, the Home Basic and Home Premium editions contain plenty of ads for Windows Anytime Upgrade, which will let you upgrade your "inferior" version of Windows to the obscenely overpriced (and unnecessary) Ultimate version.

With climate change no longer a distant threat and electricity prices shooting up all the time, you'll be glad to know that Vista has tried to make low-power states more attractive. Both standby and hibernation have been axed in favor of a half-way house called "sleep," which places your PC in a low-power state akin to hibernation but takes seconds rather than minutes to resume.

Vista has also renamed power schemes "power plans" and given you more control over creating different plans for your machine. Three defaults—high performance, balanced (the system default) and power saver—should work for most people, but if you want to make your own, you'll be glad to know you have more control than before over what you can tweak.

Vista is also more insistent when it comes to putting your PC into a low-power state, meaning that errant programs won't be able to prevent it from doing so. It's also easier to map different commands like "sleep" or "shut down" to the buttons on your computer or keyboard. We're thankful for that, as Shut down is now slightly less accessible from the Start menu.

6 Data Protection

Keep your system safe at all times

Too many people don't take backing up seriously enough, which is why one of Vista's most appealing new features is a brand-new back-up tool. Launch the Backup Status and Configuration tool and you'll be invited to back up your files, restore a previous backup, or perform a complete PC backup.

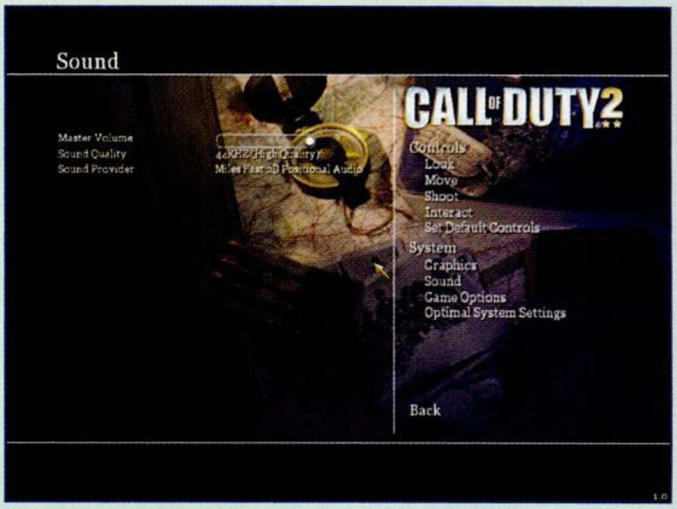
Start by backing up your files; you'll be shown a simple wizard to follow. You'll discover that at long last you can back up directly to CD or DVD: just pick your chosen location (any drive attached to your PC or a network location) and then select which drives to back up. You'll then be prompted to choose what types of file to back up—basically anything other than programs, system settings, and temporary files—courtesy of a group of tick boxes. Finally, choose how often the backup should be made (once the initial backup

Continued on page 44

Yeah, But... What About Hardware Audio?

During development, Microsoft removed a couple crucial gaming-audio–related features from Vista, including DirectSound 3D (hundreds of games use DS3D to deliver positional 5.1 audio) and support for hardware-accelerated 3D sound. This isn't a problem for new games going forward, as most developers have embraced the alternative OpenAL technology, which will continue to work in Vista. It is, however, a problem for legacy DS3D games, such as *Call of Duty 2* and *Max Payne*. When you run a DirectSound 3D game on Vista, it won't give you the option to enable 3D sound or features that require hardware acceleration, such as EAX.

Unfortunately, there's no easy solution. Creative will release its Alchemy application, a workaround to an issue that shouldn't exist in the first place. Alchemy is basically a wrapper program—it intercepts DirectSound 3D functions and converts them to OpenAL functions using a custom DLL. Alchemy works okay, but we'd much rather have a less-kludgy solution from Microsoft. Hopefully, they'll hear our cries and include hardware support with Vista's first Service Pack.



Master Volume
Sound Quality 44KHz (High Quality)
Sound Provider Miles Fast 3D Positional Audio

Move to Vista now and you may have audio issues with some legacy games.

WHAT IF ... WORLD WAR II HAPPENED THIS WAY?

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TURNING POINT

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– PC GAMER

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– IGN

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Battle human and computer opponents as you unleash devastating units from history and science fiction.

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TEEN
T
Language
Use of Alcohol and Tobacco
Violence
ESRB CONTENT RATING www.esrb.org

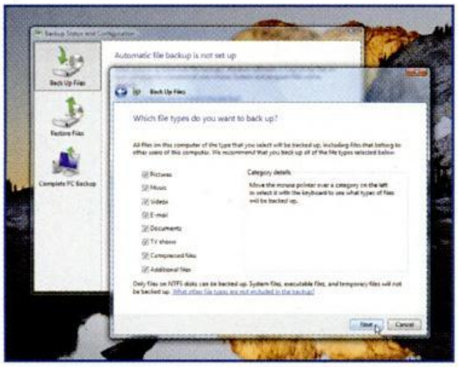
PC
DVD-ROM
SOFTWARE

The way it's
NVIDIA
meant to be played

10TACLE STUDIOS

DIGITAL REALITY

cdv


Backup Status and Configuration
Back Up Files
Restore Files
Complete PC Backup
Automatic file backup is not set up
Back Up Files
Which file types do you want to back up?
Category details
Pictures
Music
Videos
E-mail
Documents
TV shows
Compressed files
Additional files
Next
Cancel

No more excuses: Vista makes it incredibly easy to back up your data.

Yeah, But...

What About Bleeding-Edge Hardware?

The BIOS on the laptop you bought in March doesn't work with Vista. Nor does your high-end USB microphone. And you can kiss that joystick-port–based Thrustmaster flight stick goodbye, too. With any new operating system, it's safe to assume that you'll encounter some compatibility problems. However, we experienced more issues with our hardware just plain not working during the Vista run-up than we did with any Microsoft OS since Windows 2000.

The lesson here? Make sure your hardware is actually compatible with Vista before you purchase it. You can check by using the Vista Upgrade Advisor (http://tinyurl.com/o5bq4).

has been performed, only new and amended files will be included in future backups) and then click Save. You can literally forget about this backup until the day comes when you need to restore it—at which point, the restore wizard will help get your files back again.

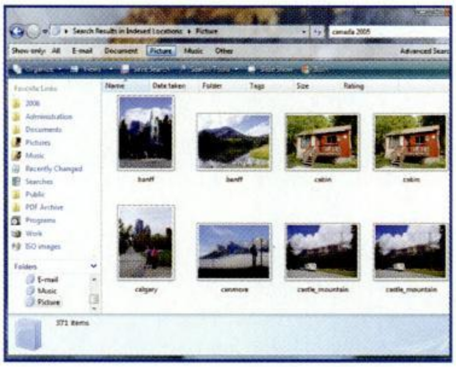
The final option enables you to create a complete backup of your PC in terms of saving all the information required to get your computer up and running again: system files, programs, user preferences, and so on. The wizard works in the same way, except you can't schedule regular backups.

Should you ever need to restore this backup, you'll need to boot from your Vista CD—the recovery environment (far more user-friendly and useful than XP's) will then step you through the process of getting your PC up and running again. Priceless.

5 Desktop Search

Your PC, made easier

Anyone who's installed and experimented with the Desktop Search tools provided by MSN or Google will know how powerful they are. They're particularly impressive compared to Windows' traditional search engine. You're no longer restricted to simply searching specific parts of your system for a filename; now you can just enter whatever you can remember and let the search tool issue results instantly thanks to its indexing of your drive.


Search Results in Indexed Locations ▸ Picture
canada 2005
Show only: All E-mail Document Picture Music Other
Advanced Search
Favorite Links
2006
Administration
Documents
Pictures
Music
Recently Changed
Searches
Public
PDF Archive
Programs
Work
ISO images
Folders
E-mail
Music
Picture
Name
Date taken
Folder
Tags
Size
Rating
banff
banff
cabin
cabin
calgary
canmore
castle_mountain
castle_mountain
371 items

At last—Vista delivers a search engine that's actually useful!

Vista's Desktop Search tool is accessible from the Start menu or any Explorer window. To make it more powerful you can easily edit the attributes of any file, or add keywords (known as tags) to files such as documents and images to help you find them in the future.

Once the results are in, you can filter them according to type. It's even possible to save your searches as Search Folders. You can then retrieve these at any time, and they'll automatically update as new items are indexed that match the search criteria that's been specified.

Similarly to Windows Explorer (see below), Desktop Search results can be viewed as scalable thumbnail previews to save you the hassle of opening each one.

4 Improved Networking

There are no excuses to disconnect

Vista makes it easier than ever to get and stay connected. The networking options are even better and more straightforward to use than before: you can set up different profiles (home, work or public place) with different rules for each network you connect to. You can also share your music folder with other PCs on your network with a simple click inside Windows Media Player. XP's half-hearted approach to sharing folders has been improved: now you can choose exactly who gets to access a shared folder, plus limit their level of access.

When it comes to connecting handheld devices like MP3 players, handhelds, and mobile phones to your PC—along with shared folders on different networks and devices—the Sync Center will manage everything, rendering ActiveSync defunct.

Windows Meeting Space is aimed mainly at business users, but if necessary it can be used like NetMeeting to take control of another PC for troubleshooting purposes. Yet perhaps one of the most exciting developments is Windows Sideshow technology, which will enable laptop manufacturers to build notebooks with secondary displays on the lid. These displays will allow

Yeah, But...

Vista Doesn't Work Well With Some Games

We've already talked about the excision of 3D sound from the operating system, but there's a larger problem. It turns out that many online games that use *PunkBuster* to limit cheating require Administrator access to work properly. The problem is that neither the game, *PunkBuster*, nor Vista actually tells you that: you just get kicked from the server every time you try to join a game. The solution is relatively simple—in the offending game's Properties window, you simply set it to always run as an Administrator—but the entire process needs to be more user-friendly. Please get to work on this, Microsoft.

Continued on page 46

Life is quieter with Zalman

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CHAMP1ON SERIES

Fatal1ty Champion Case

FC-ZE1

The FC-ZE1 is a gamers' PC case equipped with black aluminum, red LED, and a friendly design for easy assembly and use.

Heatpipe Cooled
600Watt Modular Power Supply

ZM600-HP

The ZM600-HP is a power supply equipped with high performance heatpipes that maximize cooling performance and modular cables that enhance user friendliness.

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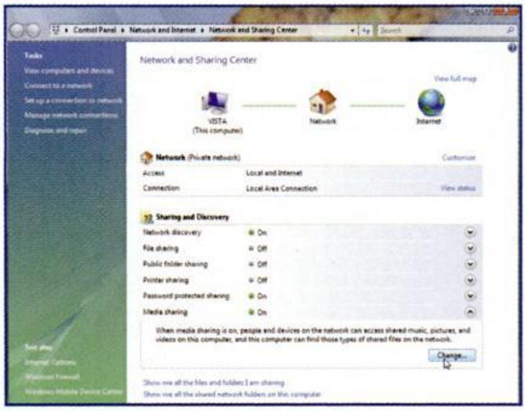
Continued from page 44



Control Panel ▸ Network and Internet ▸ Network and Sharing Center

Network and Sharing Center

VISTA (This computer) — Network — Internet

Network (Private network)

Access: Local and Internet

Connection: Local Area Connection

Sharing and Discovery

Network discovery: On

File sharing: Off

Public folder sharing: Off

Printer sharing: Off

Password protected sharing: On

Media sharing: On

When media sharing is on, people and devices on the network can access shared music, pictures, and videos on this computer, and this computer can find those types of shared files on the network.

View full map
Customize
View status
Change...
Show me all the files and folders I am sharing
Show me all the shared network folders on this computer

The Network and Sharing Center enables you to check your network settings at a glance.

you to check email, view contact details, and so on without having to boot up your laptop first.

3 Better Stability and Maintenance

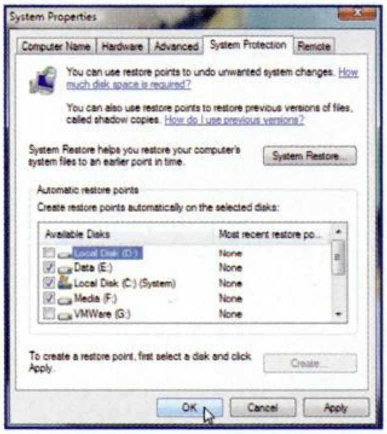
System woes keep on shrinking

Windows XP offered a quantum leap forward in stability and reliability, and though Vista doesn't offer such radical enhancements, it does improve matters further. Microsoft has been using all of those error reports people have been sending to develop code that prevents common crashes and system hangs. Driver technology has also been tweaked: while Vista is compatible with 2000 and XP drivers, Vista-specific drivers are more reliable and adept at recovering from a problem.

Vista also features built-in diagnostic tools that can provide early warning and protection against failure of critical components such as your hard drive and memory. Furthermore, it's much more adept at resolving networking problems, that bugbear of many PC users. As an example, if your PC is showing symptoms of failing memory, the Online Crash Analysis tool will automatically schedule a memory check the next time your system boots.

If your system does run into trouble, you have plenty of emergency measures. System Restore has not only been revamped to be more reliable, but it also produces shadow copies of files, enabling you to go back to earlier versions of individual files without rolling back your whole machine.

We also had first-hand experience with Vista's Automatic Recovery tools when our laptop became messed up, and we can certainly vouch that the Startup Recovery Tool offers a much friendlier and effective way of getting your PC up and running again.



System Properties

You can use restore points to undo unwanted system changes. How much disk space is required?

You can also use restore points to restore previous versions of files, called shadow copies. How do I use previous versions?

System Restore helps you restore your computer's system files to an earlier point in time.

Automatic restore points

Create restore points automatically on the selected disks:

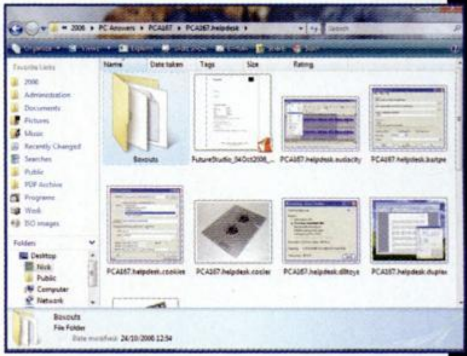
Available Disks	Most recent restore po...
☐ Local Disk (D:)	None
☑ Data (E:)	None
☑ Local Disk (C:) (System)	None
☑ Media (F:)	None
☐ VMWare (G:)	None

To create a restore point, first select a disk and click Apply.

System Restore now creates shadow copies of files, enabling you to roll back to earlier documents.

2 Revamped Windows Explorer

The possibilities are endless!



Windows Explorer is now designed to be more helpful than ever.

Getting around Vista has changed radically. Click Start followed by your username and you'll have access to key folders like My Documents, My Music, and so on. Don't be fooled by the appearance, though: This isn't your Documents and Settings folder, but a shortcut to your user folders, all of which can be moved to another area of your hard drive by right-clicking and choosing the Properties > Location tab.

A list of links running down the left-hand side gives you super-fast access to your most-accessed folders. Office users familiar with the Places Bar will recognize its origins, but this system is far more versatile. You can also create fully scalable views of the files within a folder: click Views and use the slider to make the icons larger or smaller (or to switch to tiles, details, or list view). This option is more than just a gimmick—many file types show up as mini

Continued on page 48

Yeah, But...

Vista Includes Consumer Unfriendly DRM!

On the DRM front, we're pretty much convinced that Microsoft hasn't actually integrated anything more insidious than Windows Media Player 11 into Vista, at least not for current standard-definition content. (Blu-ray and HD DVD content are protected much like they are on XP and will require a full HDCP path for high-def playback.) But the OS contains the fundamental underpinnings to completely lock down the video-rendering pipeline to prevent ripping of next-gen content.

That's not the least of it. Because of content-protection concerns, Vista won't support CableCard for the vast majority of users. CableCard, in theory, allows users to access high-def content from their cable or satellite providers, without being tied to the device supplied by the TV provider. The thought was that CableCard would let you view HDTV on your PC without resorting to an over-the-air signal. Unfortunately, for CableCard's protected video path to work, your machine must be certified, and only large OEM manufacturers like Dell and HP will be eligible for certification. Pretty awesome, right?

The fundamental problem is that for certain key low-level operations, such as video rendering, Vista has been designed to give third parties—the content providers—veto rights over crucial aspects of your system. Do you trust a company like Sony, which infected millions of PCs with a malicious rootkit, with low-level access to your rig?

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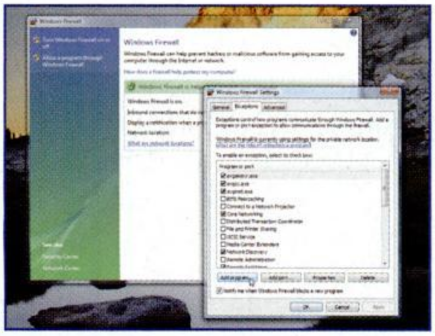
Continued from page 46

previews, enabling you to quickly scan a folder for content.

Depending on what you've selected, look for additional options next to the Organize and Views button: Email and Print enables you to do just that with selected files, while Burn enables you to select files and folders to burn to CD or DVD. (Vista also supports "Live File System," a packet-writing system that makes it possible to use a rewritable disc like a flash drive or floppy.)

1 A More Secure Windows!

Vista's given its glossy touch to your security controls.



Vista's built-in firewall now monitors outgoing as well as incoming connections.

Vista is more secure than XP out of the box, which means that once it's installed, you have better protection the first time you venture online. The Windows Firewall now works in both directions, monitoring outgoing connections and incoming ones. It's still basic and non–user-friendly, but it's definitely improved. Windows Defender is included as a standard feature, and to showcase this, the Security Center has been updated to include a malware protection section. You'll still need to install anti-virus separately; AVG Free Edition 7.5 is compatible if your existing anti-virus tool won't work.

Other visible enhancements include the much-improved IE7, which has an anti-phishing filter for fake Web sites trying to steal your personal data, plus other enhancements such as ActiveX opt-in (which basically disables all pre-installed ActiveX controls by default), address-bar protection, and more.

For example, one feature of IE7 that is exclusive to Vista is the fact that it runs in Protected Mode, which basically means that it runs with enough access privileges to browse the Web, but can't silently download software or modify key system settings. This kind of access-based protection is also found elsewhere in Vista in the form of User Account Control.

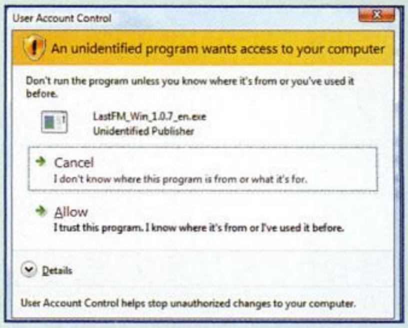
There are two levels of user: standard (Vista's equivalent of XP's limited user) and administrator. In most cases, the standard user level of access is more than adequate, so even administrators run with that level of access most of the time. If a program or user requests a greater level of control—for example, if you attempt to open the Advanced Properties dialog of the System Control Panel—you're confronted with a pop-up message warning you of this fact and enabling you to choose whether you want to permit this request. It can be a little annoying, but considering how much extra protection this setup gives you, we think the distraction is well worth it. (For much more on Vista's Security tools, see story on page 72.) MPC

Yeah, But...

Vista Is Kind of Annoying!

User Account Control is part of Microsoft's fix to prevent malware applications from taking advantage of Administrator privileges on infected PCs to install more malware. Every time an installer runs on your Vista PC, a prompt will ask for your permission to install the software in question. That's a great idea, but we think the implementation is pretty poor.

The problem is the frequency of prompts: They come up so often that people will quickly learn to auto-click them, thus risking malware infections. Even worse, instead of forcing you to take any action that would require thought, the prompts don't even ask you to re-enter your password (by default)—all you have to do is click a button and the app will install itself. UAC is the PC equivalent of taking your shoes off in the airport security line: It makes you feel as though something's being done to protect you, but ultimately it doesn't do much to improve security. This situation isn't likely to change, but it should.



User Account Control

An unidentified program wants access to your computer

Don't run the program unless you know where it's from or you've used it before.

LastFM_Win_1.0.7_en.exe
Unidentified Publisher

→ Cancel
I don't know where this program is from or what it's for.

→ Allow
I trust this program. I know where it's from or I've used it before.

Details

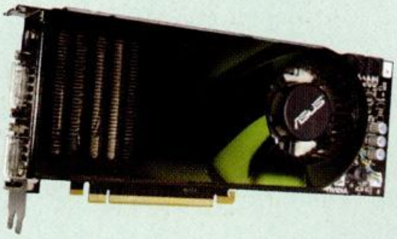
User Account Control helps stop unauthorized changes to your computer.

Are you ready for lots and lots of this?

Yeah, But...

What About Driver Support?

The big vendors like ATI and Nvidia should have drivers ready for Vista's launch (although no GeForce 8800 drivers were available at the corporate launch on November 30), but expect really big problems to arise with all that other hardware attached to your system. It's going to be tough to find drivers for older hardware, and we've even encountered problems getting drivers for brand-new gear. Sure, your mouse and keyboard will work, but will you have access to the cool sensitivity-changing and macro software that works with it?



Be prepared for some driver glitches with some of your hardware!

Even if your hardware is supported, are the drivers fully baked?

If the Vista launch follows the timeline of past Windows launches, drivers will be scarce for the first few months while vendors slowly certify their products to run on the new OS.

Yeah, But...

You CAN WAIT!

You should be asking yourself if you need Vista today. The only people who should answer *yes* are the folks who already have a DirectX 10 videocard and are anxiously awaiting their *Crysis* preorders. For everyone else, it certainly won't hurt to wait for the bugs to be worked out, the drivers to be released, and your machine to be in optimum condition to handle the new OS. Indeed, it can only help.

VISTA'S HERE: ARE YOU READY?

Windows Vista looks great, but is your PC powerful enough? And will Vista run your favorite software? The answers, right here.

BY MIKE WILLIAMS

Finally, after five long years, Windows XP is about to be replaced. So should we all shed a tear as the world's most popular Operating System heads for a slow decline into obscurity? No, of course not: it's about time we had some new toys, and Vista promises plenty. Shiny new interface, new applets, new versions of Internet Explorer and Media Player, greatly improved security, clever search features, better Internet performance—and that's just the start. We've waited too long, and the sooner Vista arrives, the better.

VISTA ENDURED EXTENSIVE TESTING BY MORE THAN A HALF-MILLION PEOPLE, EVEN BEFORE THE PUBLIC BETA RELEASES

However, there's a problem. If you're not planning to buy a brand-new PC with Vista pre-installed, then you'll want to upgrade your existing PC instead, and that may not be easy. The long wait for Vista means that it's a big leap in many ways, and the product has significantly heavier hardware requirements than Windows XP. Major changes to the underlying code mean that it won't necessarily run all your old software.

Moving to Vista isn't a task that you should undertake lightly. It'll take some thought and a little research, and may cost more than you expected. Careful planning should ensure everything runs smoothly, and we've got plenty of advice, tips, and ideas to help you.

CAPABLE OR PREMIUM?

Deciding whether your PC can run Vista isn't as easy as you might think, partly because Microsoft splits qualifying PCs into two groups.

Basic systems are known as Windows Vista Capable. They run virtually all Vista applications and benefit you with the improvements in security, organizing and finding your files, networking, and more.

To really impress your friends, though, you'll need a Vista Premium Ready PC. These systems can do everything you'd expect from a Vista Capable PC, but are also capable of running the new Windows Aero interface. Some people don't think that's a big deal, and they arguably have a point: new features such as translucent window frames and task bar really aren't of much use to anyone. However, Windows Aero isn't about just cosmetic change.

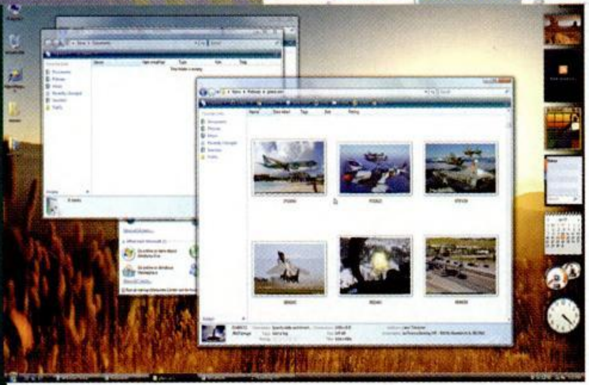
Get Vista on a Premium Ready PC and you'll benefit from a new 3D task-switching screen. This feature provides more visual information about currently running applications than you get from Windows XP (or a mere Vista Capable PC), so it should make you more productive. Other Aero features—such as interface scaling (resize a window and see the interface resize to fit, too, on some applications) and real-time thumbnail previews of documents in the new Explorer—are positive benefits that could make a real difference.

We think Aero is more than just a prettier face for Windows, and anyone who spends a lot of time on their PC will

5 Quick Tips

- The 64-bit version of Vista still has many more compatibility issues with both hardware and software. Ignore it and choose the standard 32-bit version for now.
- Many Java applications have had great difficulty running with the Vista betas, but Sun reports that Java Standard Edition 6 will fix all these problems **(www.java.com)**.
- Don't move to Vista unless you're really sure it's what you want—there's no way to roll back to the previous Operating System installation.
- Most Vista upgrades go smoothly, but don't ever take that for granted. Assume the worst and back up every important data file before you start.
- Download the VMware Server **(www.vmware.com)** and you'll be able to try Vista in a virtual machine on your Windows XP system, without messing up your current hard drive or settings.

Continued from page 49



To get Windows Aero, you'll need a DirectX 9–compatible graphics card with at least 128MB of RAM. Is it worth upgrading? Features such as translucent window frames look pretty but aren't must-haves.

benefit from having it around. So what do you need to get it? Here's the official word.

HARDWARE SPECIFICATIONS

The official Microsoft "Windows Vista: Get Ready" site **(www.microsoft.com/windowsvista/getready/default.mspx)** provides details on exactly what your PC will require to run Windows. It's a great place to start, although you should remember that these specifications are as much about marketing as technical advice.

Take the processor recommendation, for example. Microsoft says that a Windows Vista Capable PC requires an 800MHz CPU and a Premium Ready PC should be more like a 1GHz model, but keep in mind that these are minimum specifications designed not to frighten off upgraders. We'd suggest that more acceptable speeds would be closer to 1.2GHz and 1.5GHz, respectively.

Microsoft's view of Vista's memory requirements is similarly optimistic, at 512MB minimum for Vista Capable systems and 1GB for Vista Premium. In reality, we'd recommend 1GB as a minimum for everyone and 2GB as the minimum RAM for your next new PC. Still, RAM is easy to upgrade later, so if your PC has 512MB of memory now and you're short on cash, then we'd say leave it for now and see what happens.

Vista makes serious demands on your hard-drive space, with Microsoft saying that it'll grab around 15GB (an amazing jump from Windows XP Professional's 1.5GB) and that your drive capacity must be at least 40GB. The OS comes on DVDs now, so obviously your PC will require a DVD drive to install it. (Microsoft also plans to make the OS available via download for people in North America with fat broadband pipes and/or lots of patience.)

GRAPHICS POWER

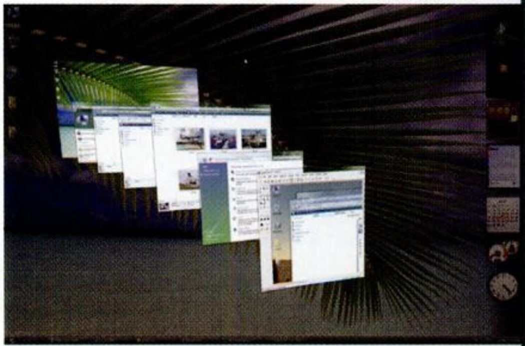
The most demanding requirements are probably for your graphics card. Even the minimum Vista Capable PC should be compatible with DirectX 9, for instance. Click Start > Run and launch DirectX to see the version currently available on your PC. If it's not version 9, then check your graphics-card documentation to see if you can install it. (Or grab the latest version from **www.microsoft.com/windows/directx.)**

Vista Premium Ready PCs need a DirectX 9 card with 128MB of video RAM that supports Pixel Shader 2.0 in hardware and has a WDDM (Windows Driver Display Model) driver available. NVIDIA has just become the first graphics company to release WHQL (Windows Hardware Quality Labs) drivers that will run on Vista, which means 128MB cards from 2002's GeForce FX series right up to the GeForce 7 should handle the Windows Aero interface with ease. ATI cards from the Radeon 9500 onwards should also work, and some S3 systems (Chrome S25, Chrome S27, GammaChrome) are Vista-ready as well.

Most 128MB cards should be Vista Premium Ready, then, but if your PC uses integrated graphics—a chipset on the motherboard—then it's a different story. Vista will work with Intel's GMA 950 integrated graphics, but most don't have the power to run Vista in full. They usually share your system memory, too, so even if your setup will run Windows Aero, it might require 128MB of your PC's RAM. This situation may cause problems of its own.

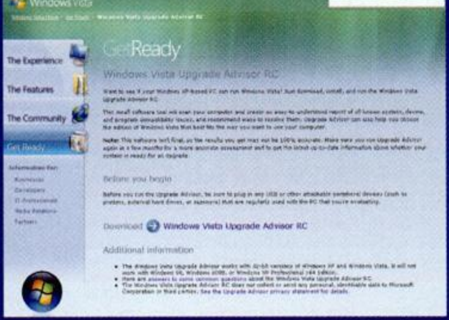
Fortunately, the fix isn't too bad. A 128MB GeForce 6200 card, for example,

Continued on page 52

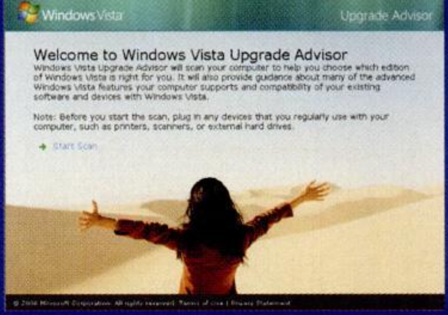


Try task-switching in Vista with Aero turned on, and it's a different ballgame. Forget the plain [Alt] + [Tab] icons you get in XP. Instead, Vista delivers a 3D stack of images showing a view of each application.

Using the Upgrade Advisor



There are all kinds of complications to consider before upgrading to Vista. The Windows Vista Upgrade Advisor can detect most of these problems. Download a copy from **www.microsoft.com/windowsvista/getready/upgradeadvisor.** Or simply run the copy we've included on the disc bundled with this issue—you're not using it as a coaster, are you?



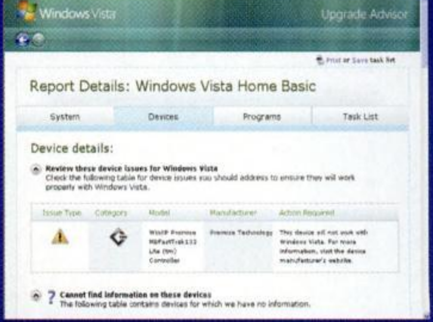
Windows Vista™ Upgrade Advisor RC Release [Build 1.0.0000000.309]

Welcome to Windows Vista Upgrade Advisor

Windows Vista Upgrade Advisor will scan your computer to help you choose which edition of Windows Vista is right for you. It will also provide guidance about many of the advanced Windows Vista features your computer supports and compatibility of your existing software and devices with Windows Vista.

Note: Before you start the scan, plug in any devices that you regularly use with your computer, such as printers, scanners, or external hard drives.

The Windows Vista Upgrade Advisor can report only on issues it can find, so make sure any external devices are plugged in: printer, scanner, and so on. Give the system a few seconds, then launch the Upgrade Advisor and click Start Scan.



Report Details: Windows Vista Home Basic

Device details:

Review these device issues for Windows Vista
Check the following table for device issues you should address to ensure they will work properly with Windows Vista.

Cannot find information on these devices
The following table contains devices for which we have no information.

Click "See Details" when the scan's complete to see if you'll be able to run Vista and to learn which version is best. Choose the Devices tab and Programs tab to see if any of your hardware or programs are flagged as not working with Vista.

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Continued from page 50

Aero combines cosmetic tweaks (animations) and practical ideas (live previews of documents, resizable interfaces). Check with a Vista-equipped friend to get a feel for how these work.

won't deliver decent gaming rates anymore, but it's likely to handle Vista just fine. Additionally, browsing a site such as pricegrabber.com reveals plenty of buying options for less than $60. So don't worry: even if you begin Vista with boring old Capable graphics, you can become Premium Ready at any time for a very reasonable price.

SOFTWARE SOLUTIONS

If your PC is fairly new or you chose your previous one wisely, then you might find that it's ready to run Vista immediately. That's good news, of course, but you'll have some other considerations. For instance, plenty of standard, major Windows applications won't run under Vista at all, such as Nero Burning ROM 6 on our test system. If you upgrade without first checking software compatibility, you might find that some of your favorite or most useful programs will no longer function.

The place to begin checking compatibility is the Windows Vista Upgrade Advisor (see sidebar on previous page). This utility checks your installed software against a Microsoft database of problem applications and points out any that won't work or require an upgrade. The database changes frequently, so even if you've run the Advisor before, it's worth doing so again to get the latest information.

Once Microsoft gives your system a clean bill of health, browse the Vista Software Compatibility Lists at sites such as IEXBeta **(www.iexbeta.com/wiki/index.php/Windows_Vista_Software_Compatibility_List)** to check for reported problems. If you get no help there, ask at a message board such as the Windows Vista Forums **(www.thevistaforums.com)** or Annoyances.org **(www.annoyances.org/exec/forum/winvista)** for advice.

By now you should be aware of just about every potential Vista-related hardware and software problem for your system. If things look bad, you could wait for Vista Service Pack 1, which should be along soon and may resolve many issues. However, if your PC seems problem-free, then back up your system and upgrade. Vista is an impressive successor to XP, and we think you'll find it worth all the effort. **MPC**

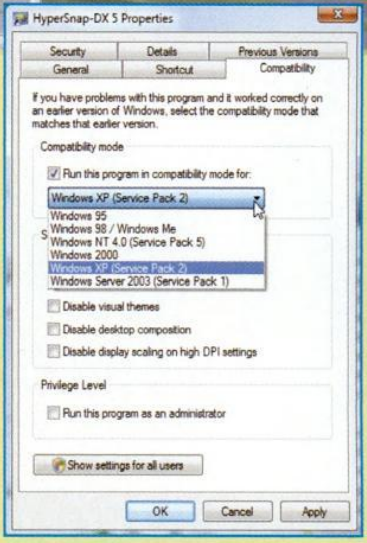
Run Almost Any Program on Vista

You may hear reports that a favorite application won't run properly under Vista, but that's not necessarily the case.

Vista itself provides a compatibility mode that tries to fool applications into thinking that they're running in a previous version of Windows. Right-click the shortcut to a program in Vista, then click Properties > Compatibility, check the Compatibility mode box, and select "Windows XP (Service Pack 2)" in the list.

The Compatibility tab also enables you to turn off new Vista Aero features just for a specific application. You can choose to "run this program as an Administrator"—it isn't recommended (for security reasons), but it might be all you need to fix any compatibility issues.

It's probably best to discover these issues before you upgrade, which is why Microsoft is releasing the Windows Application Compatibility toolkit **(www.microsoft.com/technet/prodtechnol/windows/appcompatibility)**. This kit should help with problematic programs and offer fixes to get them running in Vista.



If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.

Compatibility mode

☑ Run this program in compatibility mode for:

Windows XP (Service Pack 2)

- Windows 95
- Windows 98 / Windows Me
- Windows NT 4.0 (Service Pack 5)
- Windows 2000
- Windows XP (Service Pack 2)
- Windows Server 2003 (Service Pack 1)

☐ Disable visual themes

☐ Disable desktop composition

☐ Disable display scaling on high DPI settings

Privilege Level

☐ Run this program as an administrator

If an application won't run under Vista, then the Vista Program Compatibility Wizard may be able to help.

Finally, there's always the option of contacting whoever created the software in question. If they want people to continue using their program, then an upgrade of some kind should be available, now or in the very near future.

Bring the Best of Vista to XP

WinCustomize
Skinning the frog
PDC 2005
start

With the right tools, XP can imitate much of the look and feel of Vista.

If you can't upgrade, it's a pity, but don't feel like you're missing out. With a small effort you can bring much of what Vista has to offer to just about any Windows XP PC.

Take security, for example. Vista delivers a new User Account Control system that runs applications with the minimum level of permissions. (For more on this feature, see story on page 72.) You can selectively apply a very similar idea in XP using a free tool called DropMyRights. **(http://msdn.microsoft.com/library/en-us/dncode/html/secure11152004.asp).**

Vista comes with new applications, but some of these are available for XP, too. Download and install IE7 **(www.microsoft.com/windows/ie)** and Windows Media Player 11 **(www.microsoft.com/windows/windowsmedia)**.

If you're keen on the neat 3D task switcher, TopDesk **(www.otakusoftware.com)** produces exactly the same effect for only $15.

If you'd settle for just enough of the interface to fool your friends into thinking you've splashed out on Vista, then check out WindowBlinds **(www.windowblinds.net)**.

For another Vista makeover strategy, see the story on page 96.

Your struggle is timeless. Your enemy is immortal...

With an incredibly deep story, lush environments, PC-enhanced gameplay, and new characters, fighting styles, weapons, and items, the Jade Empire experience has never been more compelling. In this spectacular action-RPG Special Edition, your choices and actions will determine the fate of the entire Jade Empire.

JADE EMPIRE SPECIAL EDITION

Special Edition includes Jade Empire art book and poster, plus exclusive in-game content

"Offers the kind of role-playing, story, and memorable characters you'd expect from a BioWare RPG."
GameSpot

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Interact with an abundance of fascinating characters.

Master new fighting styles inspired by classic martial arts films.

Choose from six characters, each with their own powers and abilities.

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Intense Violence
Mild Language
Suggestive Themes

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Personalization

IN WITH THE NEW WITH THE OLD!

Make the move from XP to Vista—with all your priceless files and settings just the way you like 'em. We show you every step for migrating to the latest version of Windows while leaving XP's bloat behind!

BY JOEL DURHAM JR.

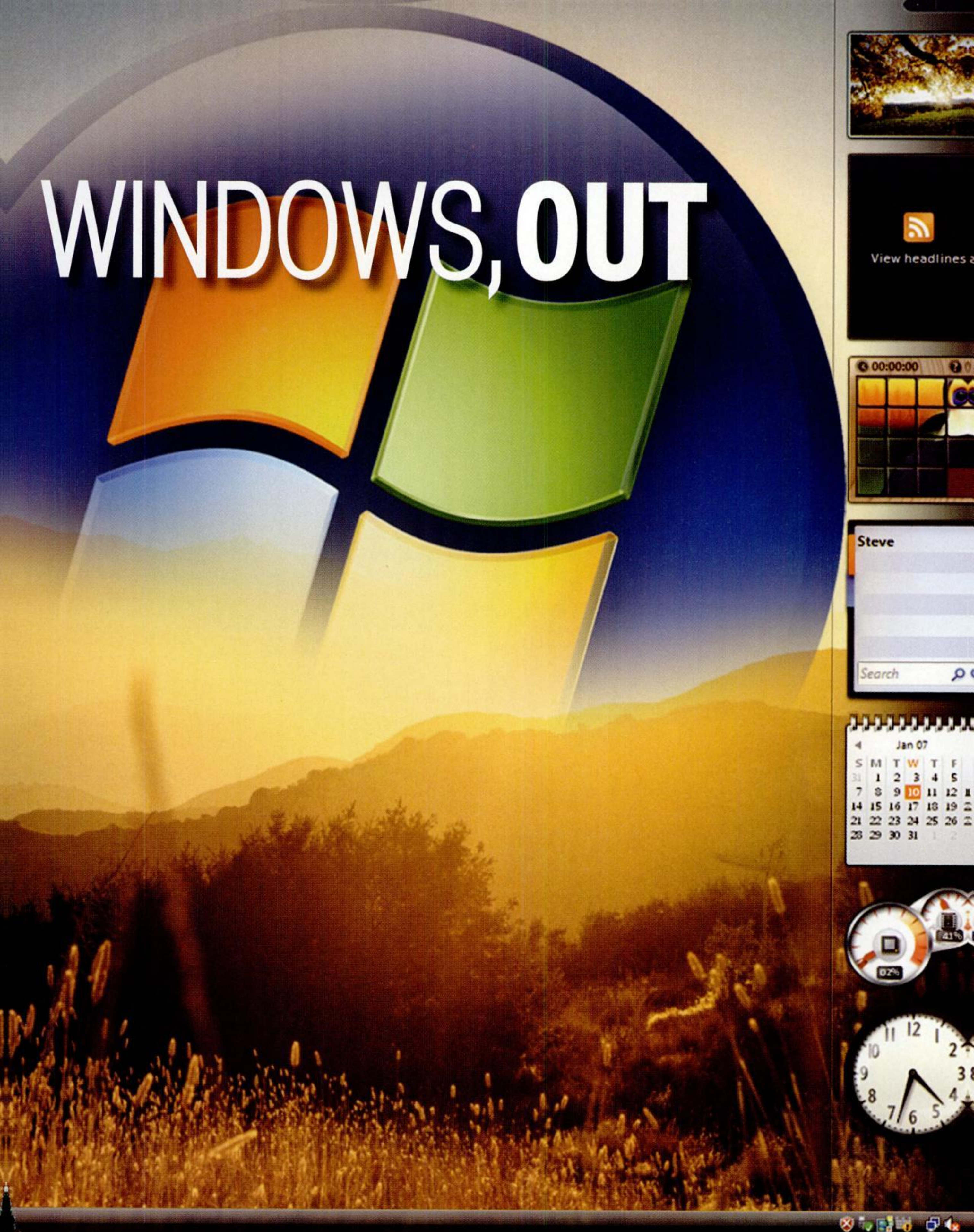
There's nothing like a sweet and sparkling-clean setup of a new operating system to give you all the fresh installation goodness without the upgrade aftertaste. Upgrading might be a suitable way to go for some people, but it leaves old files and collected bloat lollygagging around your new OS, and who wants that?

Instead, we're going to show you how to migrate from your exiting Windows XP install to a clean install of Windows Vista. It might seem like a roundabout process, but our method preserves your old files while setting a fresh installation of the newest version of Windows—and dumping all those years of bloat buildup.

First, of course, you'll make backups of your important files. That's always imperative in case something goes horribly awry: you don't want to lose, say, your library of digital pics, or that priceless "multimedia" collection. After your data are safe, you'll use the Windows XP File and Settings Transfer Wizard (FSTW) to archive all your stuff to a network, an external drive, or a spare internal drive (your choice). At that point you can either install a new hard drive or wipe the old one clean and drop Windows Vista onto it. Finally, you'll grab your files and settings from the FSTW archive, pausing only to download drivers and install your apps.

What you'll be left with is all your old stuff on a new, cleanly installed OS. You can then proceed to get to know, and eventually to love or hate, Windows Vista on your own.

WINDOWS, OUT


View headlines a
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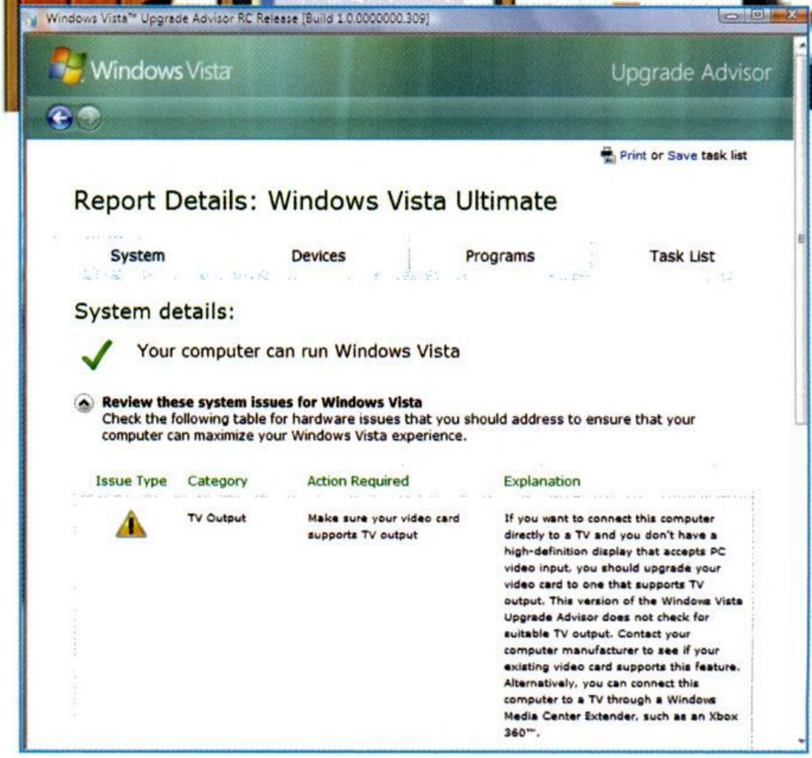
GOODBYE, WINDOWS XP

First things first, however: Let's make sure your PC can run Vista before we go through all the hassle of installing it. Makes sense, no?

Insert the Windows Vista DVD and click "Check compatibility online" to open the Windows Vista Upgrade Advisor in Internet Explorer. In just a few minutes, you'll find out whether your hardware can run Vista; which Windows Vista edition Microsoft thinks is the best match for your hardware; what system upgrades are necessary to make your system compatible with a particular Vista edition; which devices need driver downloads for compatibility with Vista; and which currently installed programs are incompatible with Windows Vista. The Upgrade Advisor warns you if you need replacements or updates for your favorite programs.

We've also included the Advisor on the CD that came with this issue, so you have no excuse for not giving it a whirl.



Report Details: Windows Vista Ultimate

System details:

✓ Your computer can run Windows Vista

Review these system issues for Windows Vista
Check the following table for hardware issues that you should address to ensure that your computer can maximize your Windows Vista experience.

Issue Type	Category	Action Required	Explanation
⚠	TV Output	Make sure your video card supports TV output	If you want to connect this computer directly to a TV and you don't have a high-definition display that accepts PC video input, you should upgrade your video card to one that supports TV output. This version of the Windows Vista Upgrade Advisor does not check for suitable TV output. Contact your computer manufacturer to see if your existing video card supports this feature. Alternatively, you can connect this computer to a TV through a Windows Media Center Extender, such as an Xbox 360™.

Review each section of the report to make sure your system is Vista-ready.

READY, SET…BACK UP YOUR DATA!

The first step to Vista involves stowing your data for later. We started with an XP-loaded system with a few odds and ends installed—including, most importantly, some recent games.

You can use any backup utility you like to create all-important backups of your data. You can even drag-and-drop straight copies of the stuff you can't live without to a spare hard drive, a NAS device, or removable media such as writeable DVDs. No matter how you wish to do it, *don't skip this step*. Users tend to avoid making backups of their stuff for all kinds of reasons, but when you're about to uproot your operating system, you really don't have a choice. If something goes horribly wrong, which won't happen if you pay attention to the following instructions (catastrophic hardware failures notwithstanding), you'll feel like a real dolt if you've been lazy with your backups.

The data you need to back up include anything you've created with your applications (or otherwise saved to your hard drive) that you can't easily reproduce. This could include documents, spreadsheets, digital photographs, music, home videos, game saves, and so on. Scour your hard drive and seek out anything you can't simply reinstall.

You can use a free utility like *SyncBack*, available from **http://www.2brightsparks.com/**, to perform the backup.

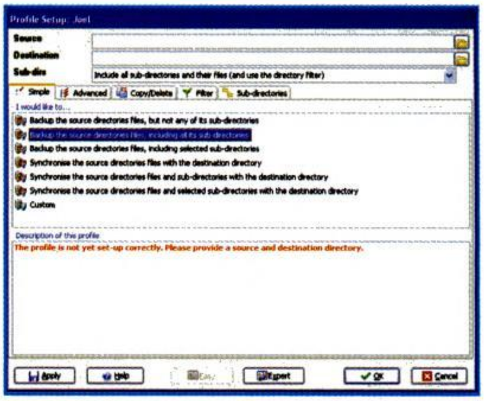
The trial version of *SyncBack* prompts you to create a profile upon initial startup. It then invites you to choose a folder of which to make a backup—including, if you like, all of its subfolders. (The trial version is on the CD, and you can download it at www.2brightsparks.com.)

Browse to your source folder. Then browse to a destination—ideally an external hard drive, a NAS device, or a network share.

SyncBack is rife with options, but even if you leave everything at their defaults, you'll end up with a trustworthy backup. When you've made your selections, follow the prompts to initiate the backup. Depending on how much stuff you chose to back up, and the bandwidth between your hard drive and the destination drive, it could take minutes or hours. You can repeat the backup process with as many folders as you like.

NEXT: TRANSFER YOUR FILES AND SETTINGS

When you're done backing up, you're going to back up your stuff all over again. This time, as we mentioned before, you'll

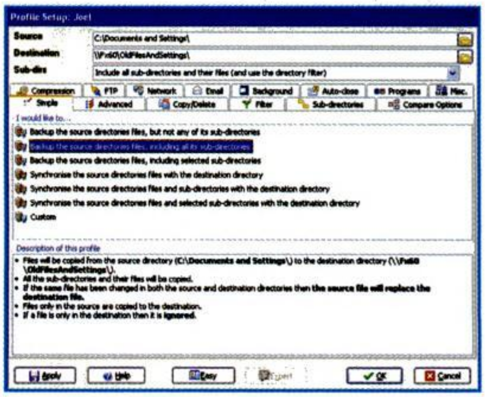


Source
Destination
Sub-dirs Include all sub-directories and their files (and use the directory filter)

I would like to...
- Backup the source directories files, but not any of its sub-directories
- Backup the source directories files, including all its sub-directories
- Backup the source directories files, including selected sub-directories
- Synchronise the source directories files with the destination directory
- Synchronise the source directories files and sub-directories with the destination directory
- Synchronise the source directories files and selected sub-directories with the destination directory
- Custom

Description of this profile
The profile is not yet set-up correctly. Please provide a source and destination directory.

When SyncBack starts, it prompts you for source and destination folders.



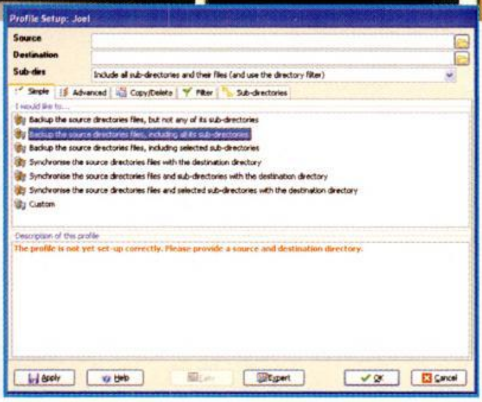
Source C:\Documents and Settings\
Destination \\Fx60\OldFilesAndSettings\
Sub-dirs Include all sub-directories and their files (and use the directory filter)

I would like to...
- Backup the source directories files, but not any of its sub-directories
- Backup the source directories files, including all its sub-directories
- Backup the source directories files, including selected sub-directories
- Synchronise the source directories files with the destination directory
- Synchronise the source directories files and sub-directories with the destination directory
- Synchronise the source directories files and selected sub-directories with the destination directory
- Custom

Description of this profile
- Files will be copied from the source directory (**C:\Documents and Settings**) to the destination directory (**\\Fx60\OldFilesAndSettings\**).
- All the sub-directories and their files will be copied.
- If the same file has been changed in both the source and destination directories then **the source file will replace the destination file.**
- Files only in the source are copied to the destination.
- If a file is only in the destination then it is **ignored.**

We've chosen the Documents and Settings folder to back up to a network share.

View headlines
00:00:00


Profile Setup: Joel

Source

Destination

Sub-dirs: Include all sub-directories and their files (and use the directory filter)

I would like to...

- Backup the source directories files, but not any of its sub-directories
- Backup the source directories files, including all its sub-directories
- Backup the source directories files, including selected sub-directories
- Synchronise the source directories files with the destination directory
- Synchronise the source directories files and sub-directories with the destination directory
- Synchronise the source directories files and selected sub-directories with the destination directory
- Custom

Description of this profile

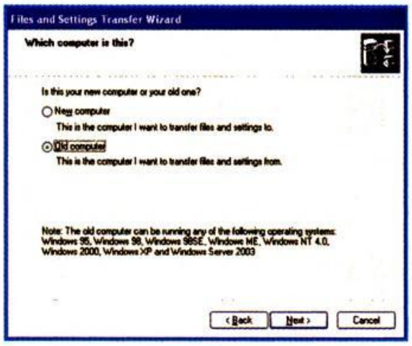
The profile is not yet set-up correctly. Please provide a source and destination directory.

When the backup is complete, SyncBack displays a log page in your default browser.

use the Windows Files and Settings Transfer Wizard (FSTW), which prepares your files for transfer to a new computer.

Though you can use the FSTW to transfer files directly from an old computer to a new one in real time via a network or crosslink cable connection, you can also use it to prepare files from an old computer—or, in this case, an old operating system—for use on a new one. Fire up the FSTW through Start\All Programs\Accessories\System Tools.

After the screen introducing the wizard, the FSTW will ask if you're on the old or new computer. Choose Old and click Next.


Files and Settings Transfer Wizard

Which computer is this?

Is this your new computer or your old one?

○ New computer

This is the computer I want to transfer files and settings to.

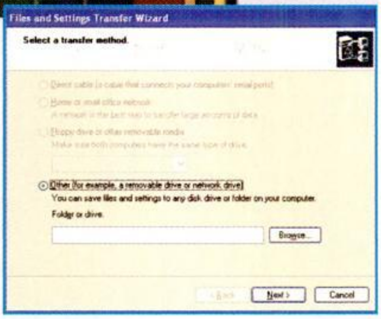
● Old computer

This is the computer I want to transfer files and settings from.

Note: The old computer can be running any of the following operating systems: Windows 95, Windows 98, Windows 98SE, Windows ME, Windows NT 4.0, Windows 2000, Windows XP and Windows Server 2003

The FSTW needs to know whether you're sitting at the old or the new computer.

If you're using Windows Firewall, you might see a screen prompting you to unblock the FSTW. Go ahead and unblock it—it won't eat your hard drive or attack random Web sites or anything. It just wants to know if you're networked. Next, the wizard will ask you what you want to do with your files. Many of the options will be grayed out because it won't detect a computer on your network running the "new computer" FSTW counterpart.


Files and Settings Transfer Wizard

Select a transfer method.

○ Direct cable (a cable that connects your computers' serial ports)

○ Home or small office network

A network is the best way to transfer large amounts of data.

○ Floppy drive or other removable media

Make sure both computers have the same type of drive.

● Other (for example, a removable drive or network drive)

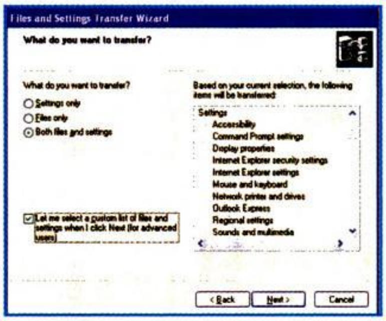
You can save files and settings to any disk drive or folder on your computer.

Folder or drive:

The only option not grayed out happens to be the one you want.

Click Other, and then Browse. Select a removable drive, a NAS drive, or a network share. (You can use the same drive to which you performed the backup, above.) When you've selected a destination, click Next.

The FSTW presents you with a screen asking what you wish to transfer. The options include Settings Only, Files Only, or Both. Make your selection, and fill the checkbox indicating that you wish to customize the list. Click Next.


Files and Settings Transfer Wizard

What do you want to transfer?

What do you want to transfer?

○ Settings only

○ Files only

● Both files and settings

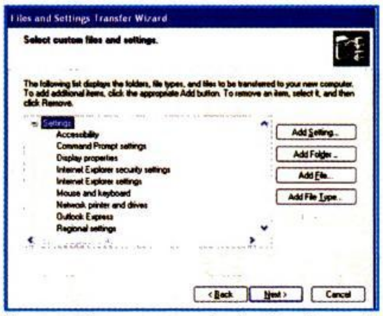
☑ Let me select a custom list of files and settings when I click Next (for advanced users)

Based on your current selection, the following items will be transferred:

Settings
- Accessibility
- Command Prompt settings
- Display properties
- Internet Explorer security settings
- Internet Explorer settings
- Mouse and keyboard
- Network printer and drives
- Outlook Express
- Regional settings
- Sounds and multimedia

Be sure to fill the checkbox on the bottom left.

Now examine the settings and files that Windows plans to archive. If you wish to add any files or folders, now is the time to do it: Simply click the appropriate Add button and follow the prompts. When you're done, click Next.


Files and Settings Transfer Wizard

Select custom files and settings.

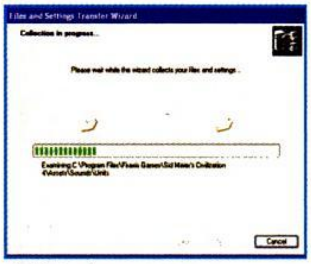
The following list displays the folders, file types, and files to be transferred to your new computer. To add additional items, click the appropriate Add button. To remove an item, select it, and then click Remove.

Settings
- Accessibility
- Command Prompt settings
- Display properties
- Internet Explorer security settings
- Internet Explorer settings
- Mouse and keyboard
- Network printer and drives
- Outlook Express
- Regional settings

If you want, you can customize the files and settings for Windows to archive.

Jan 07
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
41%
02%

Windows will proceed to archive the files and settings. This process can take a long time, as Windows compresses them as it goes. The amount of time you have to wait depends on how much data Windows has to deal with as well as your system's specs. When the archiving is finally done, you're ready to do away with, or just wipe clean, the old hard drive.


Files and Settings Transfer Wizard

Collection in progress...

Please wait while the wizard collects your files and settings...

Examining C:\Program Files\Firaxis Games\Sid Meier's Civilization 4\Assets\Sounds\Units

Archiving in progress.

PREP THE VISTA DRIVE FOR GAME TIME!

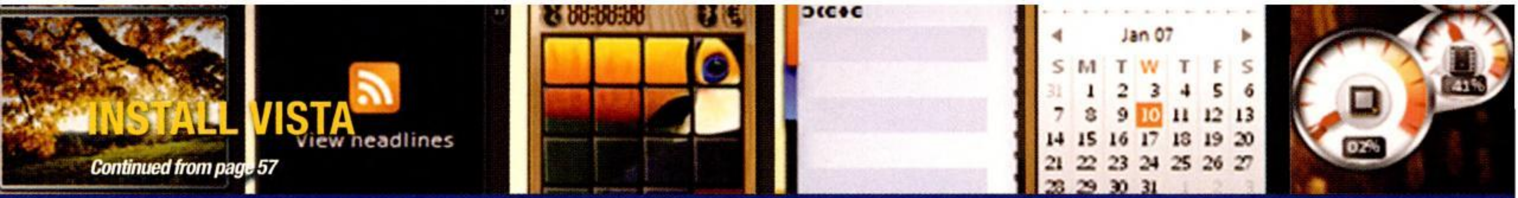
If you're planning to install Windows Vista on the same drive on which you were running Windows XP, just leave it alone. You can reformat it, and thus wipe it clean, as you install Windows Vista. There's no need to use another utility to wipe it out unless it contains ridiculously sensitive data that you don't want to fall into the hands of the government, in which case you should drill holes through it and pitch it into a lava filled crevice on Mount Doom (or failing that, your nearest active volcano will suffice).

If you're replacing the drive, you have to physically remove the old one and pop the new one into place. The difficulty of such a procedure depends on how easily you can access the drives in your computer's case; it's usually a cinch. In fact, if it's your first time replacing PC parts, it's normally trickier to make sure you purchase the right *kind* of drive than to perform the physical replacement. Make sure you get the same type (Serial ATA, or SATA, to replace a SATA drive; parallel ATA, or IDE, to replace an IDE drive). For instructions on how to swap out a drive, see the "How2: Install a New Drive" sidebar.

INSTALL VISTA!

Now it's time to paint your computer with the transparent hues of Aero "glass," and bestow it with the other features of Windows Vista. Have your installation DVD ready, and, of course, make sure the license key is handy. You won't get far without that.

Continued on page 58



Continued from page 57

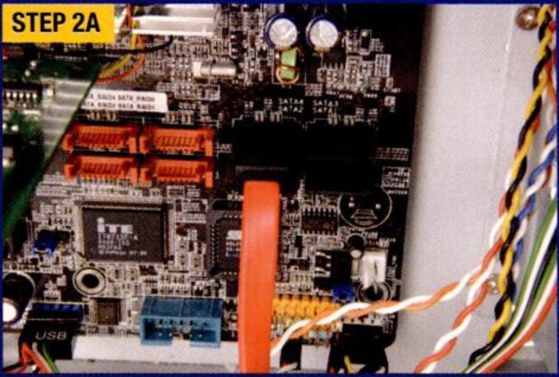
How-To Install a Hard Drive

STEP 1:
Prep your hard drives

Before you can mount your hard drives in your system, you need to prep the drives. First, consult your case manual and mount whatever kind of rails or other gizmos necessary to install your hard drives in your case. Once that's done, you need to configure your drives for your rig.

Most optical drives still use IDE, or parallel ATA, ribbon cables to connect to your PC. However, SATA hard drives have pretty much phased out IDE drives, which is great news. Why? For SATA devices, there is none of that jumper malarkey—just plug them into a SATA port on your mobo and you're good to go. The interface is a point-to-point connection, so there's no bandwidth sharing between devices. Installing multiple SATA hard drives is a much simpler process than installing multiple IDE drives.

STEP 2A

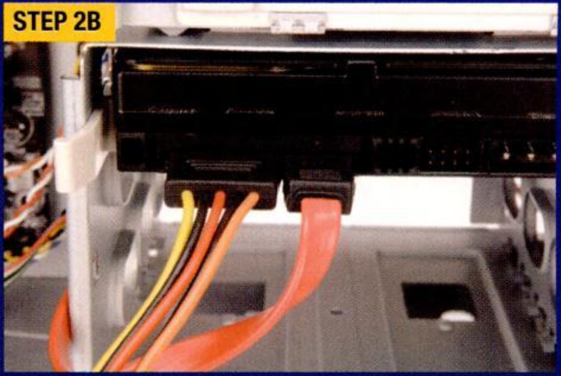


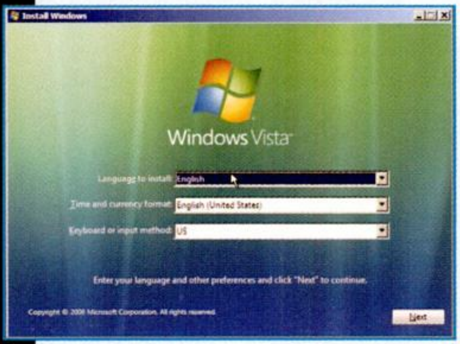
STEP 2:
Connect your hard drives

Next, you need to feed data connections and power to your hard drives. With Serial ATA drives, this is simple: Just plug each drive into one of your motherboard's Serial ATA ports **(2a)**. We recommend using the ports built into your mobo's chipset for the drive that will contain Windows—you can find out which ports on the motherboard correspond to that Serial ATA controller by consulting your manual.

Be very careful connecting your Serial ATA cables: The connectors are easily broken, so make sure you don't put pressure on the motherboard or hard-drive connectors **(2b)**. Also, some Serial ATA drives offer both a Serial ATA and old-fashioned four-pin Molex power connector—DO NOT USE BOTH POWER CONNECTORS! Use one or the other—it doesn't matter which. (Note: There are two sets of SATA ports on the mobo: standard and RAID. For this project we're using the standard ports.)

STEP 2B





Language to install: English

Time and currency format: English (United States)

Keyboard or input method: US

Enter your language and other preferences and click "Next" to continue.

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Vista welcomes you to the collective.

To install Windows Vista, you'll need to ensure that your computer's BIOS setup program is set to boot off the DVD drive. To accomplish that, power on the PC, wait for a prompt that tells you how to enter Setup (e.g., "Press DEL to enter Setup"), and then press the appropriate key or key combination.

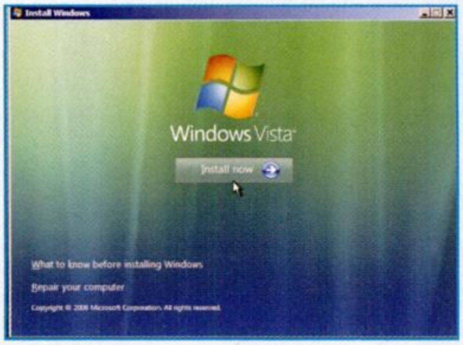
Without altering anything else, scan through the various BIOS setup pages for a *boot order* or *boot priority* option. Set the DVD drive to boot before the hard drive. Save the changes and exit the BIOS setup program. As the computer boots, watch for a prompt indicating that you should "press any key" to boot from the optical drive. Do it.

The first thing you'll see is a black screen with a gray progress bar. Windows Vista will load a whole bunch of files, and then launch into a graphical environment for its setup routine.

Note: You may also install Vista alongside your existing XP installation in a dual-boot configuration. See "Going the Dual-Boot Route" on page 48.

Windows Setup asks for some brief information, such as what language you speak; in most cases, the defaults are fine. Click Next.

The next screen gives you the option of repairing your computer, learning stuff about pre-installation, or installing Vista.



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Install now!

Click Install Now.

Continued on page 60

Personalization

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Serial ATA
SERIAL ATA
eSERIAL ATA
NexStar-3
STORE n SHARE
MUSIC
DATA
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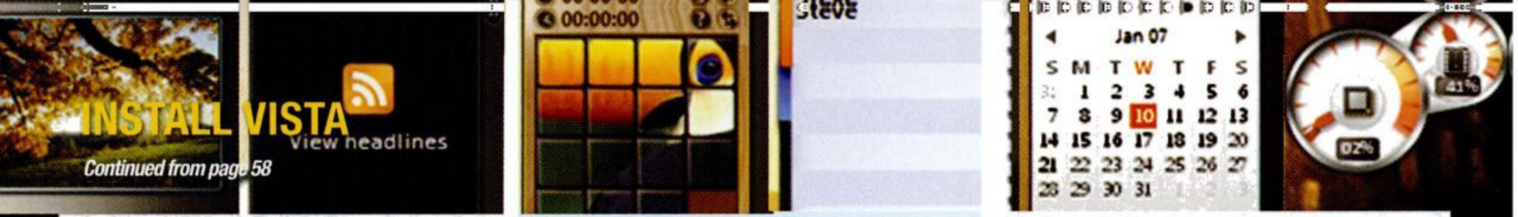
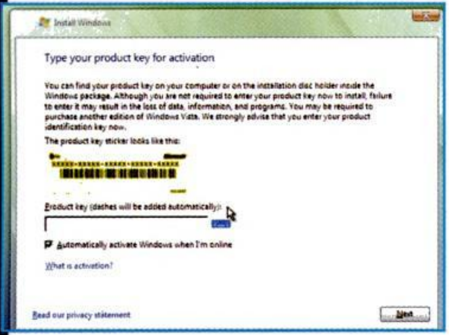


INSTALL VISTA

Continued from page 58

Next, Windows Setup asks you to type in the license key. There's only one text-box, and it's not broken up into segments: Windows Setup will insert dashes as you type in each segment of the key. When you've typed it in, click Next.



Type your product key for activation

You can find your product key on your computer or on the installation disc holder inside the Windows package. Although you are not required to enter your product key now to install, failure to enter it may result in the loss of data, information, and programs. You may be required to purchase another edition of Windows Vista. We strongly advise that you enter your product identification key now.

The product key sticker looks like this:

Product key (dashes will be added automatically):

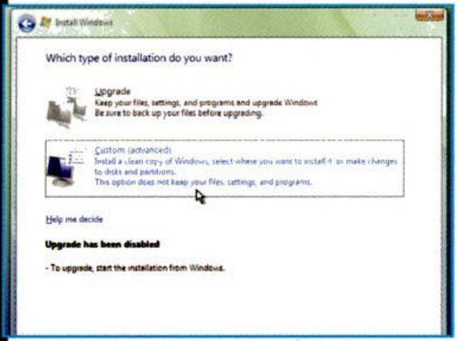
☑ Automatically activate Windows when I'm online

What is activation?

Punch in the license key, and prepare for a wall of legalese.

The following screen assaults you with the Windows Vista end-user license agreement. I know it's long and written in a language spoken only by attorneys, but you should at least browse through it before you proceed. When you're done, toggle the "I Accept the License Terms" checkbox and click Next.

The next window is sort of pointless. It asks what type of installation you want, but since you booted off the DVD, you can't perform an upgrade. There's only one choice, and that's Custom (Advanced). Click it to proceed.



Which type of installation do you want?

Upgrade
Keep your files, settings, and programs and upgrade Windows
Be sure to back up your files before upgrading.

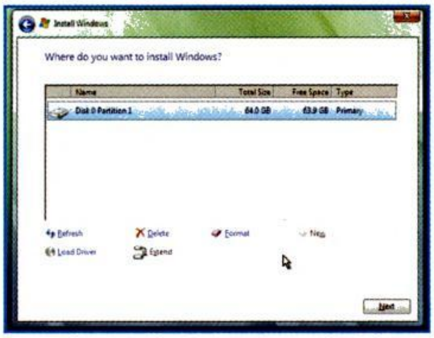
Custom (advanced)
Install a clean copy of Windows, select where you want to install it, or make changes to disks and partitions.
This option does not keep your files, settings, and programs.

Upgrade has been disabled

- To upgrade, start the installation from Windows.

Click the only option the Setup program gives you to proceed: Custom (advanced).

Windows Setup then detects your hard drive, and it shows any partitions it finds on the next screen. Click Drive Options for a more advanced screen that allows you to repartition and format the drive.



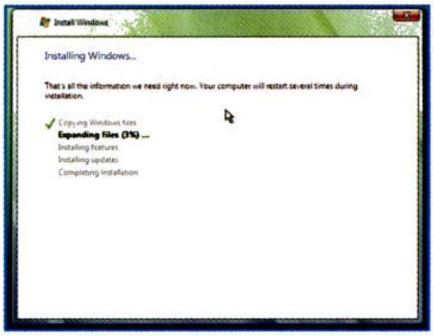
Where do you want to install Windows?

Name	Total Size	Free Space	Type
Disk 0 Partition 1	64.0 GB	63.9 GB	Primary

Having clicked Drive Options, you'll see something like this (Though hopefully your drive won't be as puny—we recommend at least a 250GB drive).

Highlight the partition on which you wish to install Vista and click Format to prep it for a clean install. When the format is complete you can click Next to proceed with the installation. (If you want to use the BitLocker hard-drive encryption, you'll need to follow some different steps, check page 49 for more details.) That's all the information Windows Setup wants from you for a while; sit back and wait while the installation takes place, or go play with your cat.

If you're replacing an existing Windows installation on an old drive, you need to delete the old partition first. To do that, select the drive with your installation and click the partition you want to delete. Click Drive Options (Advanced) to display delete, extend, format, and new-partition options. Click Delete to get rid of the partition, then select the Unallocated Space and press Next to continue.



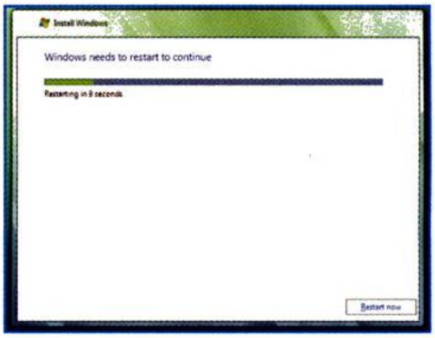
Installing Windows...

That's all the information we need right now. Your computer will restart several times during installation.

✓ Copying Windows files
Expanding files (3%) ...
Installing features
Installing updates
Completing installation

Windows Setup installs Vista much more efficiently than XP, working its way through several processes without asking you for a thing.

The computer will likely reboot two or three times during the installation. The first time it decides to reboot, you'll see a screen like the one shown below.



Windows needs to restart to continue

Restarting in 9 seconds

Windows will wait for a while to reboot...in case you want to reboot it manually.

After the first reboot, you'll see a black screen, which will eventually show the Windows Vista loading indicator. It then returns to the installation screen, where it will continue to work on setting up Vista. *Don't boot off the DVD after the initial reboot; let Vista load from the hard drive!*

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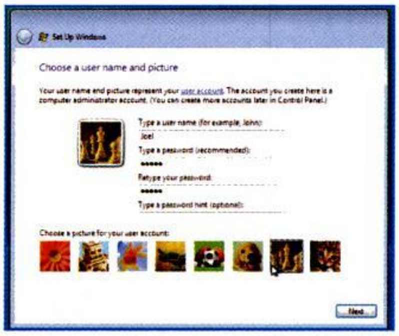
Windows Vista is loading...five years and this is all we get?

After more waiting and possibly more reboots, Vista is finally ready to ask you to make more decisions. The first thing it wants to know is your user name, a password, an optional password hint, and which icon you wish to use to represent your user account. Feed it the information it so badly wants, and click Next.



Choose a user name and picture

Your user name and picture represent your user account. The account you create here is a computer administrator account. (You can create more accounts later in Control Panel.)

Type a user name (for example, John):
Joel
Type a password (recommended):
●●●●●
Retype your password:
●●●●●
Type a password hint (optional):

Choose a picture for your user account:

Windows asks about your user account.

Continued on page 63

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Ease of Access
Start

Joe User
Desktop Software
PC Games
Corporate Solutions
Pick a category

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U2-UFO BLACK POWDER COAT - ORIGINAL TOP

THE ULTIMATE IN COMPUTER CHASSIS, MOUNTAIN MODS AWARD WINNING U2-UFO. THE U2-UFO WILL ACCOMODATE A THERMOCHILL HE 1203, 1202, OR 1201 AS WELL AS MOST ANY OTHER RADIATOR WITHOUT THE NEED FOR MODIFICATIONS. TWO POWER SUPPLY PORTS ALLOW FOR USE OF DUAL OR REDUNDANT POWER SUPPLIES. WHETHER YOU ARE COOLING WITH AIR, WATER, OR PHASE CHANGING SOLUTIONS THIS IS THE CASE THAT CAN DO IT ALL. THE U2-UFO IS FABRICATED BY SKILLED WORKERS IN THE USA. IT IS MADE FROM THICK ALUMINUM MAKING IT LIGHTWEIGHT, STURDY, AND THERMALLY FRIENDLY. CASTERS ARE INCLUDED FOR EASY MOBILITY.

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GOLD BLADE AWARD

9/10

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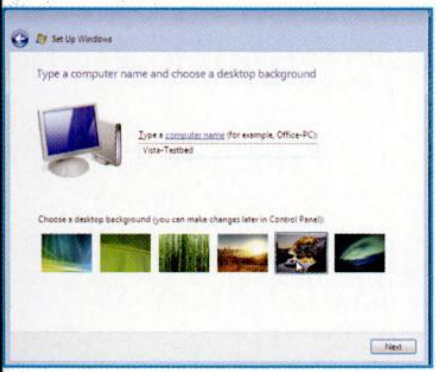
Continued from page 60

Next, it wants to know a computer name. This is different from the user name; you can have several users on a single computer. You can also select an initial desktop background at this time from a few interesting photos.



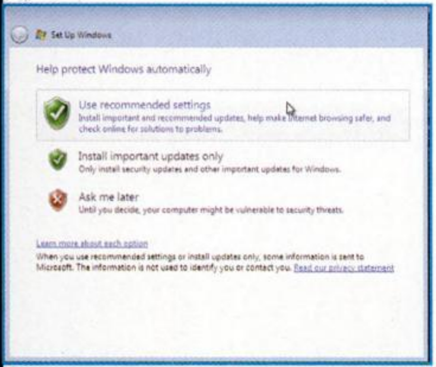
Type a computer name and choose a desktop background

Type a computer name (for example, Office-PC): Vista-Testbed

Choose a desktop background (you can make changes later in Control Panel):

More information, please!

Windows Vista then asks about security, but not very specifically. It wants to know if it can install updates (Automatic Updates), make your computer safer (using features like its built-in firewall), or wait until later for you to decide about that stuff. We suggest going with the recommended options for now, especially if your computer is connected to a network with Internet access.



Help protect Windows automatically

Use recommended settings
Install important and recommended updates, help make Internet browsing safer, and check online for solutions to problems.

Install important updates only
Only install security updates and other important updates for Windows.

Ask me later
Until you decide, your computer might be vulnerable to security threats.

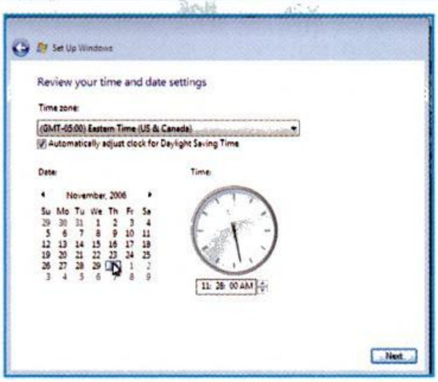
Learn more about each option

When you use recommended settings or install updates only, some information is sent to Microsoft. The information is not used to identify you or contact you. Read our privacy statement

Let Windows Vista protect your computer for you.

More innocuously, Windows Vista wants to know your time zone and the current time and date. Fill in this stuff, and click Next.

If the computer is on a network, Windows will ask where your computer is: whether it's at home, at work, or in a public place. This affects how it initially sets up network sharing and security options, as well as media-sharing options. Click the appropriate response.



Review your time and date settings

Time zone: (GMT-05:00) Eastern Time (US & Canada)

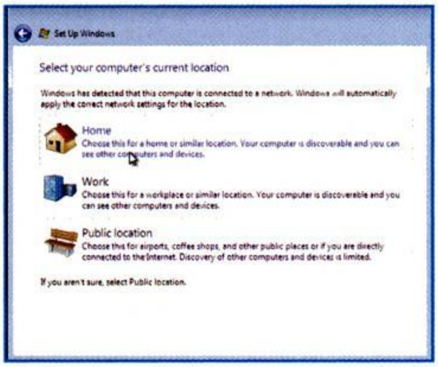
☑ Automatically adjust clock for Daylight Saving Time

Date: November, 2006

Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

Time: 11:28:00 AM

Tell Windows what time it is.



Select your computer's current location

Windows has detected that this computer is connected to a network. Windows will automatically apply the correct network settings for the location.

Home
Choose this for a home or similar location. Your computer is discoverable and you can see other computers and devices.

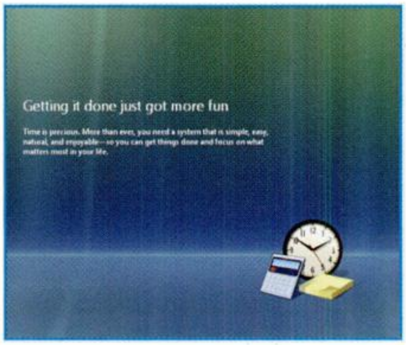
Work
Choose this for a workplace or similar location. Your computer is discoverable and you can see other computers and devices.

Public location
Choose this for airports, coffee shops, and other public places or if you are directly connected to the Internet. Discovery of other computers and devices is limited.

If you aren't sure, select Public location.

Tell Windows where you are.

You'll finally get a welcome screen, but don't get excited: when you click Start, it launches into yet another routine—this one determining your system's mojo (in other words, performance). It runs some benchmarks to determine a performance score, which you can check out later.



Getting it done just got more fun

Time is precious. More than ever, you need a system that is simple, easy, natural, and enjoyable—so you can get things done and focus on what matters most in your life.

Sizing up your computer.

When it's done with that, you'll finally see your new Windows Vista desktop. Don't even pretend that you're done yet, though. (But we're close!)

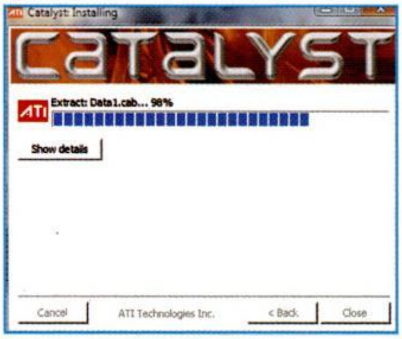
UPDATE YOUR DRIVERS

Windows Vista comes with thousands of device drivers, but hardware manufacturers, as you probably know, release newer versions regularly. Before you proceed any further with your migration, you should download and install drivers for your motherboard chipset, your graphics card, and your sound card. If you have anything else that requires specific drivers, like a video-capture device or a printer, you'll need those drivers, too.

For your motherboard drivers, head to the Web site of your motherboard's manufacturer. In our experience, not many motherboard makers have even released Windows Vista drivers yet, and if yours hasn't, don't sweat it. Windows Vista most likely knows what to do with your gear, and in most cases XP drivers will suffice.

Graphics and sound-card manufacturers, however, often move a lot faster than chipset manufacturers. Download the latest reference drivers for your graphics card (located, most likely, at **www.ati.com** or **www.nvidia.com**).

Next, head to your sound card manufacturer's website and download the latest drivers for this card.



Extract: Data1.cab... 98%

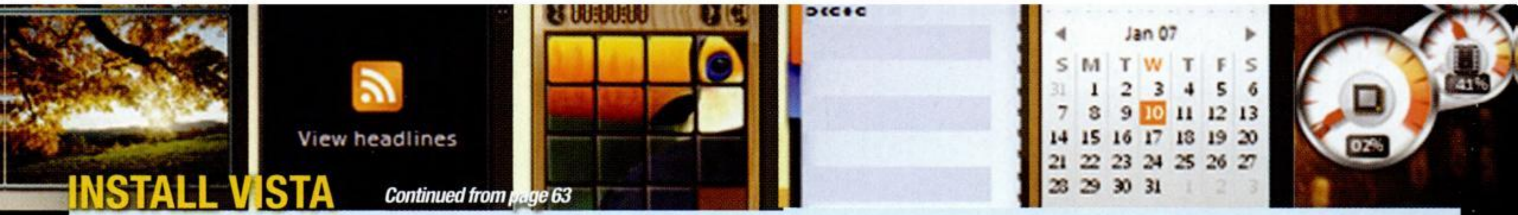
Install the graphics and soundcard drivers.

Install the drivers, rebooting when prompted.

Finally, when you're all done installing drivers, install the applications that you used on Windows XP and that you need on Windows Vista. There's no guarantee all of them will work, but it's worth a try, and so far our compatibility experiences have been very promising. Install your games, office stuff, antivirus software (if it's Windows Vista–compatible), and other important programs.

Continued on page 64

Personalization



RESTORE YOUR FILES AND SETTINGS

It's finally time to button up your migration. Remember that archive you made with Windows XP's FSTW? You're going to restore it now.

This time, you're using an application called Windows Easy Transfer (WET). Launch it through the funky new Start menu at Start\All Programs\Accessories\System Tools. When WET is ready for action, it'll show you a start screen.

Click Next, and then select "Continue a Transfer in Progress." That's right, *in progress*: you started the transfer when your computer was running Windows XP oh so long ago.

Next, WET wants to know if you're transferring through a network. It means a live transfer from a running PC to another one; whether or not you actually used a network drive, you don't want that. Click No.

Now WET asks where it might locate your archive. Select "On an external hard drive..." so you can browse to the data.

When you browse, be sure to pull down the menu and indicate that you're looking for a file created by FSTW and not WET. Find the .DAT file on your removable or networked hard drive and click Next. WET will copy the files over to a folder on your Vista hard drive. Depending on the amount of data to transfer, it could take several hours to complete.

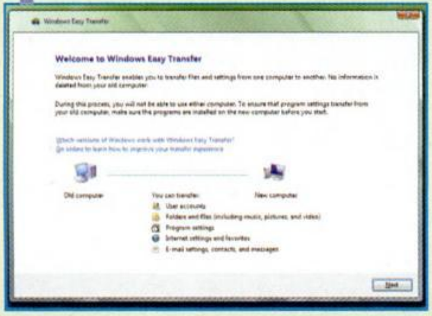
At the end of the transfer process, a Transfer is Complete dialog appears, providing a summary of the user accounts, files, folders, program settings, and system settings transferred. You should take a look at the detailed Windows Easy Transfer Report and save it as an HTML file, so you'll have a manifest of files you brought to Vista.

After you restart your computer, you can use programs that depend on the settings and files you transferred using Windows Easy Transfer. For example, when you start Windows Mail, messages from Outlook Express (which stores messages in database files) are imported as individual message files into the current user's AppData folder.

When it's done, check the files by browsing to them via the Computer link in the Start menu (it's Windows Vista's version of XP's "My Computer").

That's it! Your files, folders, and any settings that translate from Windows XP to Windows Vista should have successfully landed on the new Vista installation! Congratulations on upgrading—that is, *migrating*—to Windows Vista!

1



Welcome to Windows Easy Transfer

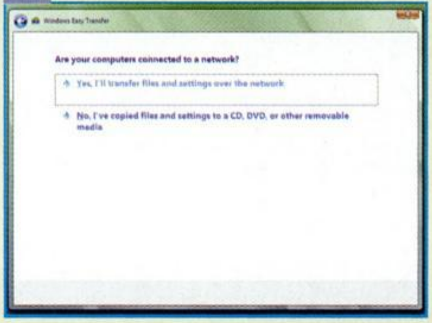
Windows Easy Transfer enables you to transfer files and settings from one computer to another. No information is deleted from your old computer.

During this process, you will not be able to use either computer. To ensure that program settings transfer from your old computer, make sure the programs are installed on the new computer before you start.

You can transfer:
- User accounts
- Folders and files (including music, pictures, and video)
- Program settings
- Internet settings and favorites
- E-mail settings, contacts, and messages

WET is ready to get busy.

2

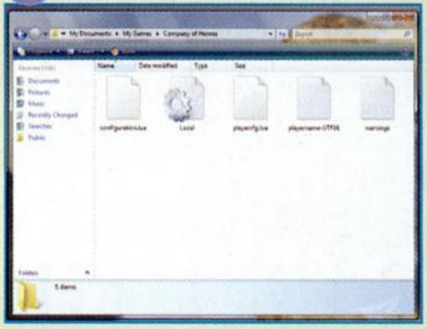


Are your computers connected to a network?

- Yes, I'll transfer files and settings over the network
- No, I've copied files and settings to a CD, DVD, or other removable media

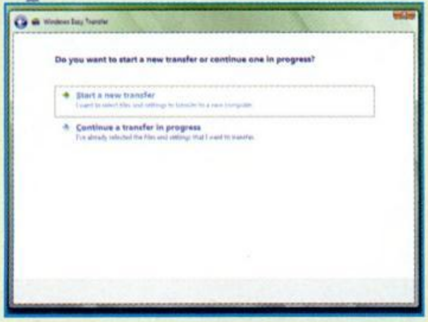
It may seem counterintuitive, but don't select the network option.

3



Make sure your files made the transition.

4

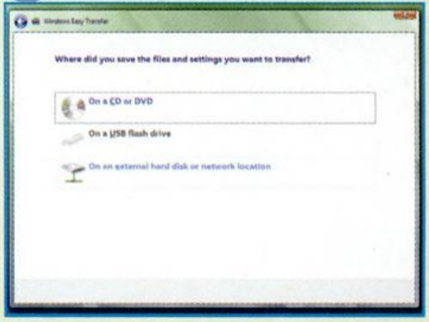


Do you want to start a new transfer or continue one in progress?

- Start a new transfer
- Continue a transfer in progress

Continue a transfer in progress.

5



Where did you save the files and settings you want to transfer?

- On a CD or DVD
- On a USB flash drive
- On an external hard disk or network location

Tell WET where to find your files.

6

You did it! A bounty of new discoveries await you in the new operating system—most of them good, we hope!

Continued on page 66

Personalization

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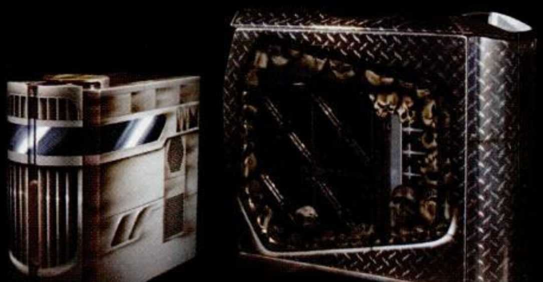


Continued from page 64

Going the Dual-Boot Route

You can, if you wish, opt not to get rid of Windows XP at all, while still enjoying the wonders of Windows Vista. You can do that in the form of a dual boot, which is a popular option for running dual operating systems side-by-side.

Windows Vista has an important caveat: it won't run as a dual boot OS on the same *logical drive* as Windows XP. In other words, you'll need either a second hard drive, or you'll need to partition your current hard drive into multiple logical drives.

You can do that with a utility called *PartitionMagic,* available for a rather hefty fee from **http://www.symantec.com.** Or you can simply install a second hard drive, which will ensure that you not only have two partitions, but that you'll have plenty of space for the fat new operating system as well.

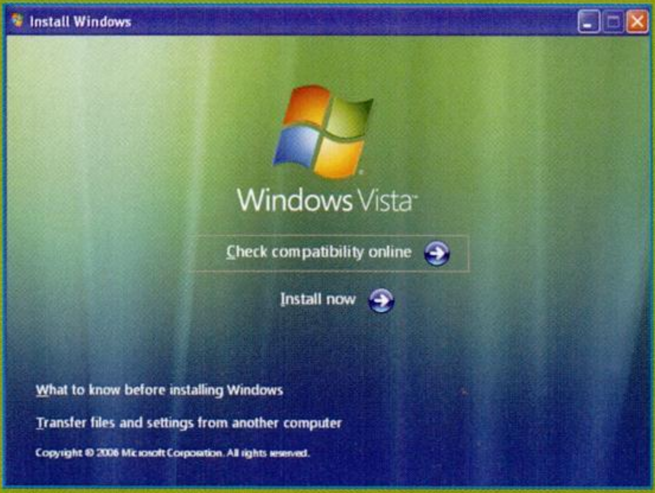
To create a dual-boot setup, *don't* boot off the Windows Vista DVD. Instead, run the setup right from Windows XP.

Run through the installation options as in the walkthrough above, and click Custom instead of Upgrade when prompted.

When it comes time to choose a drive on which to install Windows Vista, select the secondary drive or partition. Note that if you wish to reformat or partition a drive, you'll have to do it through XP before you get started.

Windows Setup will run through the Vista installation, which will be achingly similar to the one outlined above. When you finally restart the computer, a black boot screen will appear after the computer's POST (power-on self test). It will offer to let you load Microsoft Windows (in other words, Vista) or an earlier version of Windows (XP).

A couple of notes on dual booting: (1) Your applications and drivers won't make the transition; the computer will treat each operating system as a separate entity. You'll have to load drivers, apps, data, and so on into Vista to be able to use them. (2) You'll have access to each partition and hard drive from each operating system; be sure you don't accidentally overwrite files on your XP partition from Vista, or vice-versa.


Install Windows
Windows Vista
Check compatibility online
Install now
What to know before installing Windows
Transfer files and settings from another computer
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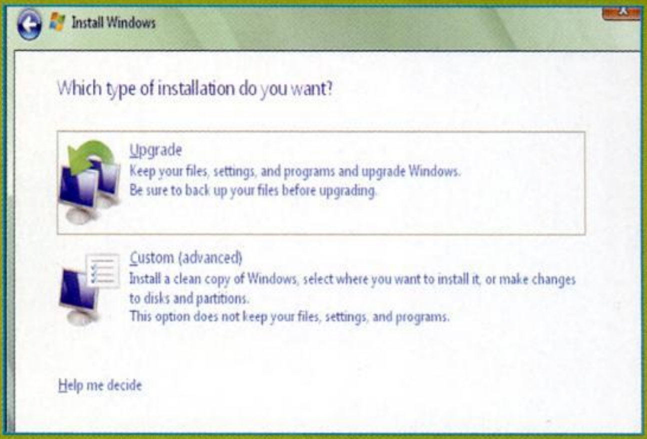
Insert the Windows Vista DVD, and this startup screen will appear.

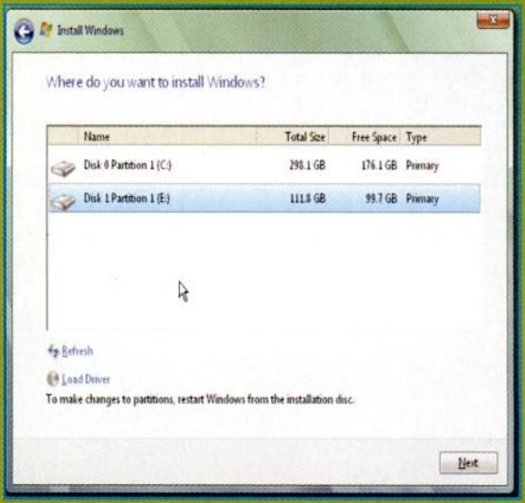


Which type of installation do you want?

Upgrade
Keep your files, settings, and programs and upgrade Windows.
Be sure to back up your files before upgrading.

Custom (advanced)
Install a clean copy of Windows, select where you want to install it, or make changes to disks and partitions.
This option does not keep your files, settings, and programs.

Click Custom on this screen.



Where do you want to install Windows?

Name	Total Size	Free Space	Type
Disk 0 Partition 1 (C:)	298.1 GB	176.1 GB	Primary
Disk 1 Partition 1 (E:)	111.8 GB	99.7 GB	Primary

To make changes to partitions, restart Windows from the installation disc.

Choose the spare partition or hard drive to set up a dual boot.

View headlines

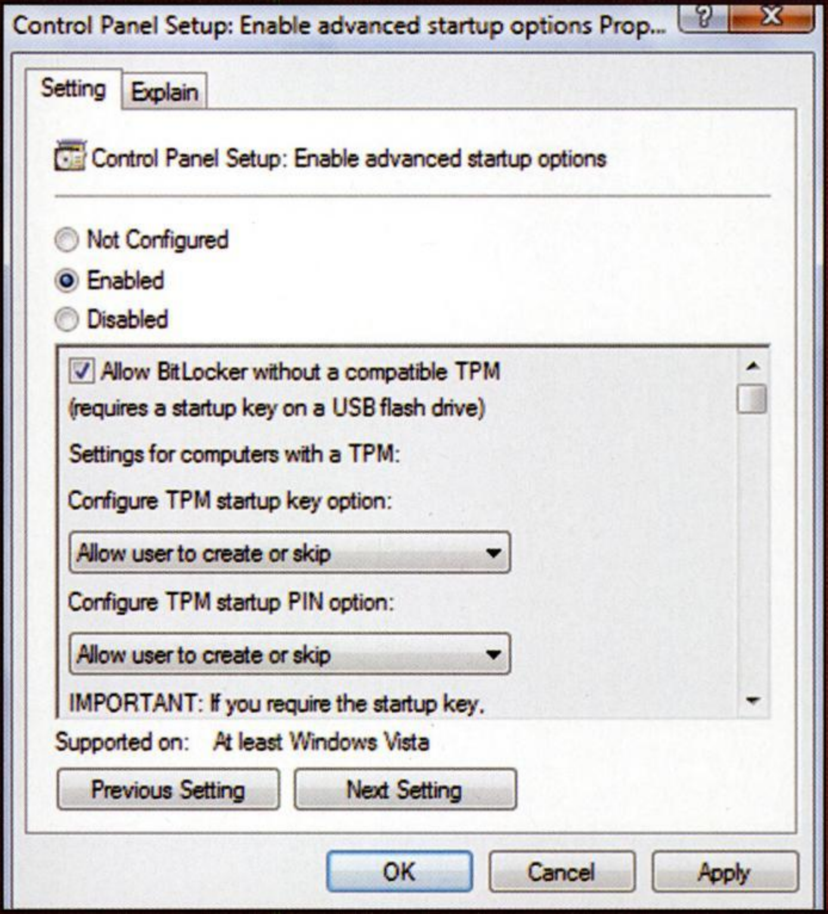
Work It!

Power users will surely want to avail themselves of these advanced Vista tricks

Getting Ready for BitLocker

If you use Windows Vista Ultimate or Enterprise, you can protect your system drive's contents from being viewed by laptop thieves or after-hours hackers. How? With BitLocker, which encrypts the system drive. To use BitLocker on your system, you must configure the drive properly. You'll need to have two partitions: a 1.5GB partition used to start the system, while the remainder of the hard disk will compose a second partition and will be encrypted using BitLocker. Both partitions must be formatted with the NTFS file system.

To enable BitLocker, you'll need to perform a clean install of Vista on your system. First, boot your machine from the Windows Vista DVD and run the Recovery Environment. Open the command prompt, start Diskpart, and perform the following commands: **select disk 0** (selects first hard disk); **clean** (deletes partition table); **create partition primary size=1500**; **assign letter=S**; **active** (creates 1.5GB partition S: and sets it to be bootable); **create partition primary**; **assign letter=C** (uses remainder of disk for C:); **list volume** (displays disk information); **exit** (closes Diskpart); **format c: /y /q /fs:NTFS**; **format s: /y /q /fs:NTFS** (formats partitions created with Diskpart); **exit** (closes command prompt). When you install Vista, install it to C: drive.



Control Panel Setup: Enable advanced startup options Prop...

Control Panel Setup: Enable advanced startup options

○ Not Configured
● Enabled
○ Disabled

☑ Allow BitLocker without a compatible TPM (requires a startup key on a USB flash drive)

Settings for computers with a TPM:

Configure TPM startup key option:

Allow user to create or skip

Configure TPM startup PIN option:

Allow user to create or skip

IMPORTANT: If you require the startup key,

Supported on: At least Windows Vista

Use the Group Policy Object Editor to enable BitLocker on systems that don't include a compatible TPM.

Before you run the BitLocker setup program, you need to determine if your system includes a Trusted Platform Module (TPM) chip and enable it in your system BIOS. On TPM-equipped systems, BitLocker uses a PIN number stored on the motherboard (or on a USB key) to decrypt your drive, so you won't be able to decrypt your data using another machine. You can also use BitLocker without a TPM chip (a USB flash drive is used for credentials), but you'll have to tweak some settings in the Group Policy Object Editor (gpedit.msc): Open Computer Components, Administrative Templates, Windows Components, BitLocker Drive Encryption, Control Panel Setup, and click Enable Advanced Startup Options. Select the option to allow BitLocker without a compatible TPM. To complete the preparation process, click Apply, then OK to close the Group Policy Object Editor. Once you've done that, you can run the BitLocker setup program in the Control Panel.

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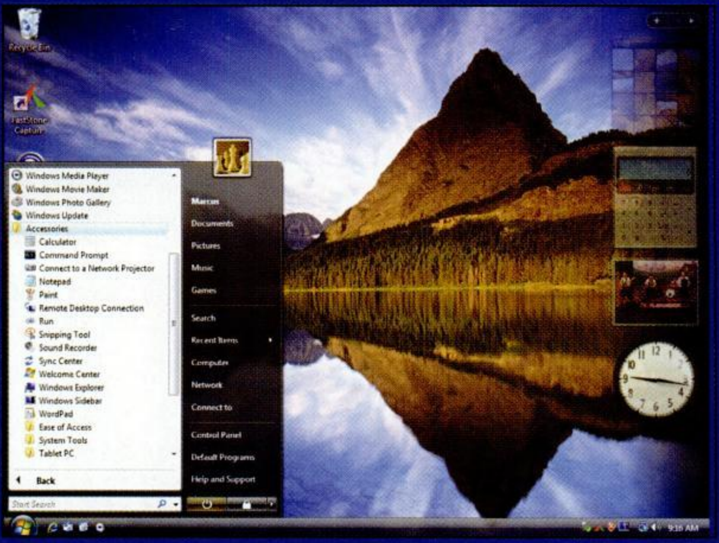
Getting Around in Vista


Recycle Bin
FastStone Capture
Windows Media Player
Windows Movie Maker
Windows Photo Gallery
Windows Update
Accessories
Calculator
Command Prompt
Connect to a Network Projector
Notepad
Paint
Remote Desktop Connection
Run
Snipping Tool
Sound Recorder
Sync Center
Welcome Center
Windows Explorer
Windows Sidebar
WordPad
Ease of Access
System Tools
Tablet PC
Back
Start Search
Marcus
Documents
Pictures
Music
Games
Search
Recent Items
Computer
Network
Connect to
Control Panel
Default Programs
Help and Support
9:16 AM

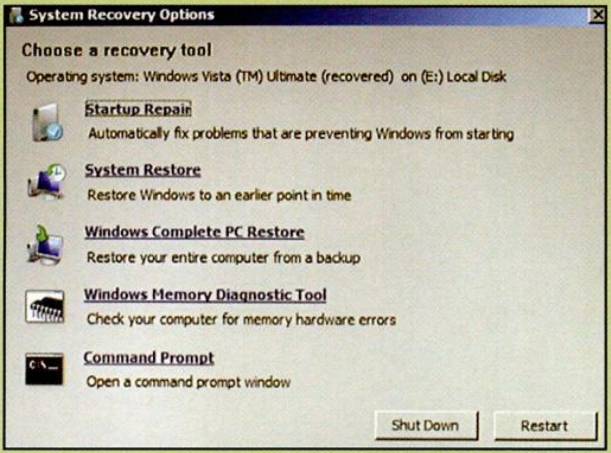
The improved Start menu gives you quick access to programs without covering up the links to user folders on the right pane or the new Windows Sidebar.

Windows Vista enables you to go almost anywhere in your system right from the Start menu without permitting the Start menu to take over your screen. The right side of the Start menu provides shortcuts to the current user's folder hierarchy, as well as direct links to the user's documents, pictures, music, and games folders. Each link opens a customized Windows Explorer view. For example, click Games, and the Games Explorer displays installed games, including ESRB ratings and package art. Click Music, and the Music Explorer provides buttons for playing and burning music.

You can find any type of file by clicking Search and entering text that matches the filename, extension, or file contents. Click Computer to view all your connected drives and get access to system properties, drive mapping, and other tools. Click Network to view network connections and shared resources. Click Connect To to connect to a network—dialup, wired, or wireless.

Fast search even found its way into the Start menu. To find and launch a program quickly, type its name into the Search tool above the Start button and press Enter.

On the right side of the screen, the new Windows Sidebar displays a customizable list of utilities ("gadgets"), perfect for making the extra space available in a widescreen display useful. However, you can also hide Sidebar or adjust the transparency level of each gadget to make it less noticeable. (Click a transparent gadget to see it in normal mode.) The Power button on the Start menu actually puts your system into Sleep mode, but you can change that functionality by going to Power Options, clicking Change Plan Settings, and selecting "Change advanced power settings." Then expand the Power buttons and lid section, and change the Start menu power-button action to suit.


System Recovery Options

Choose a recovery tool

Operating system: Windows Vista (TM) Ultimate (recovered) on (E:) Local Disk

Startup Repair
Automatically fix problems that are preventing Windows from starting

System Restore
Restore Windows to an earlier point in time

Windows Complete PC Restore
Restore your entire computer from a backup

Windows Memory Diagnostic Tool
Check your computer for memory hardware errors

Command Prompt
Open a command prompt window

Shut Down
Restart

The Recovery Environment provides a quintet of powerful repair features to fix systems that won't boot. One of these options is a full-featured command prompt that enables you to run any command-line tool, including file-copy and disk-management utilities.

Troubleshooting Vista

Microsoft has equipped its new OS with some tools to make problem-solving easier

Using the Recovery Environment

Microsoft Windows Vista includes the Recovery Environment, a comprehensive toolkit to fix a broken Windows installation. To launch the Recovery Environment, boot your system from the Windows Vista DVD, select your language, time, currency, and keyboard settings, and on the next dialog, select the Repair option.

The Recovery Environment includes five different tools. Startup Repair automatically analyzes boot-level problems and performs the appropriate repairs. Because startup repairs

Continued on page 70

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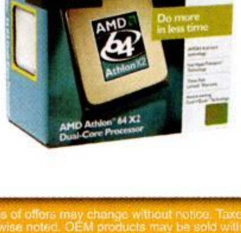
Windsor 2.4GHz 2 x 512KB L2 Cache Socket AM2 Dual Core Processor



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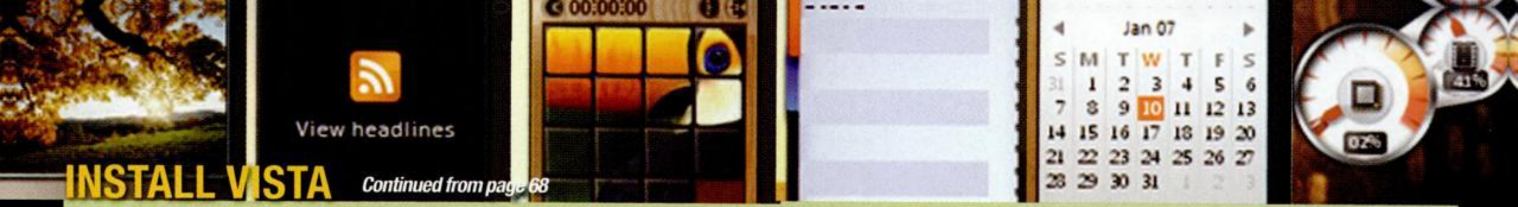
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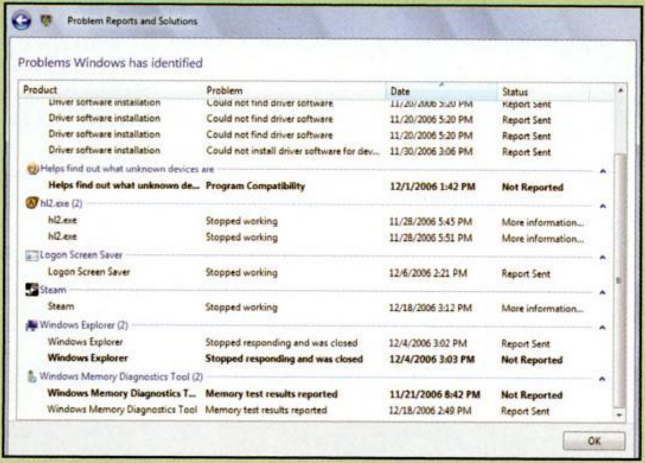
Continued from page 68

Troubleshooting Vista continued

may require multiple repair processes, you can run Startup Repair up to five times before it gives up. Run it, restart your system, and continue running it if the system won't start. You can also run System Restore from the Recovery Environment, enabling you to undo a software or hardware installation that prevents your system from starting.

Windows Complete PC Restore is a full-blown disaster-recovery solution for Vista Business, Ultimate, or Enterprise editions. It restores the backup images made using the backup software included with those versions of Vista. Windows Memory Diagnostic Tool tests all system memory, offering three test levels and many customization options to help you find memory (or CPU cache) problems. And Command Prompt, unlike the limited Windows XP Recovery Console, enables you to run any command-line program needed for system or data recovery, including Copy, Xcopy, and Robocopy (a supercharged file/folder copy program). Command Prompt can also format CD and DVD media, and can copy data to or from USB drives connected to the computer. To get help with the command prompt, enter Help at the command prompt to see a list of commands, and add /? to any command for which you'd like to see specific help.


Problem Reports and Solutions
OK

Problems Windows has identified

Product	Problem	Date	Status
Driver software installation	Could not find driver software	11/20/2006 5:20 PM	Report Sent
Driver software installation	Could not find driver software	11/20/2006 5:20 PM	Report Sent
Driver software installation	Could not find driver software	11/20/2006 5:20 PM	Report Sent
Driver software installation	Could not install driver software for dev...	11/30/2006 3:06 PM	Report Sent
Helps find out what unknown devices are			
Helps find out what unknown de...	**Program Compatibility**	**12/1/2006 1:42 PM**	**Not Reported**
hl2.exe (2)			
hl2.exe	Stopped working	11/28/2006 5:45 PM	More information...
hl2.exe	Stopped working	11/28/2006 5:51 PM	More information...
Logon Screen Saver			
Logon Screen Saver	Stopped working	12/6/2006 2:21 PM	Report Sent
Steam			
Steam	Stopped working	12/18/2006 3:12 PM	More information...
Windows Explorer (2)			
Windows Explorer	Stopped responding and was closed	12/4/2006 3:02 PM	Report Sent
Windows Explorer	**Stopped responding and was closed**	**12/4/2006 3:03 PM**	**Not Reported**
Windows Memory Diagnostics Tool (2)			
Windows Memory Diagnostics T...	**Memory test results reported**	**11/21/2006 8:42 PM**	**Not Reported**
Windows Memory Diagnostics Tool	Memory test results reported	12/18/2006 2:49 PM	Report Sent

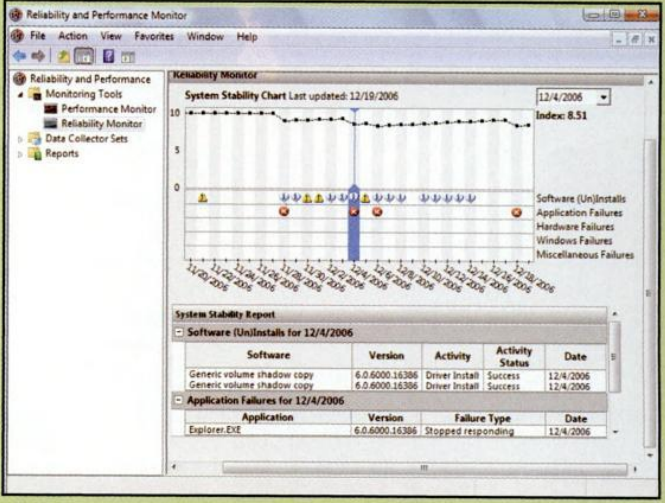
Review the Problem history to learn what problems Windows has detected and their status.

Problem Reports and Solutions

When you have a hardware or software problem, Windows Vista captures information about the problem and uploads it to Microsoft for analysis. To view problems and solutions, open the Problem Reports and Solutions applet in the Control Panel. Use Problem Reports and Solutions to view a history of problems and their solutions, configure problem reporting, list current problems and upload them, and clear the solution and problem history. When you upload problems, you may be prompted to upload additional information to help find a solution. Go ahead and say Yes, and you can review the details in case you're feeling paranoid.

Event Viewer and Reliability

Get fast relief for system problems with Windows Vista's exclusive combination of ingredients: an improved version of Event Viewer and the brand-new Reliability and Performance Monitor, both of which are found in the Control Panel's Administrative Tools. Event Viewer uses the newly redesigned Microsoft Management Console interface to display application, security, setup, system, and forwarded events. You can customize and filter event views to help you find problems quickly. The Reliability and Performance Monitor provides real-time tracking of CPU, disk drive, memory, and network performance, and its Reliability Monitor tracks application failures, hardware failures, Windows failures, and installation failures to generate a reliability index. MPC


Reliability and Performance Monitor
File
Action
View
Favorites
Window
Help
Reliability and Performance
Monitoring Tools
Performance Monitor
Reliability Monitor
Data Collector Sets
Reports
Reliability Monitor
System Stability Chart Last updated: 12/19/2006
12/4/2006
Index: 8.51
10
5
0
Software (Un)Installs
Application Failures
Hardware Failures
Windows Failures
Miscellaneous Failures
11/20/2006
11/22/2006
11/24/2006
11/26/2006
11/28/2006
11/30/2006
12/2/2006
12/4/2006
12/6/2006
12/8/2006
12/10/2006
12/12/2006
12/14/2006
12/16/2006
12/18/2006

System Stability Report

Software (Un)Installs for 12/4/2006

Software	Version	Activity	Activity Status	Date
Generic volume shadow copy	6.0.6000.16386	Driver Install	Success	12/4/2006
Generic volume shadow copy	6.0.6000.16386	Driver Install	Success	12/4/2006

Application Failures for 12/4/2006

Application	Version	Failure Type	Date
Explorer.EXE	6.0.6000.16386	Stopped responding	12/4/2006

The Reliability Monitor tracks system stability in terms of software and driver install/uninstalls, application failures, hardware failures, Windows failures, and miscellaneous failures on a daily basis.

Personalization

AVG Internet Security

NEW from

GRISOFT

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and receive unlimited toll-free
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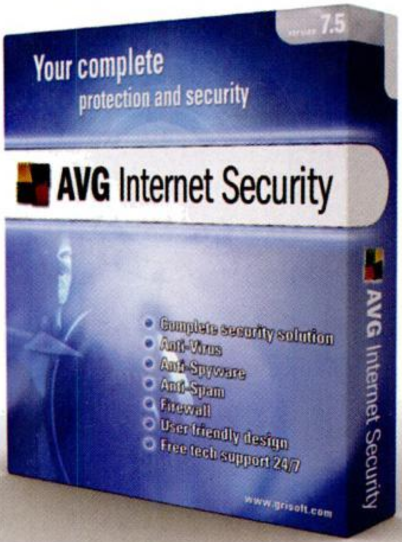
FREE!


version 7.5
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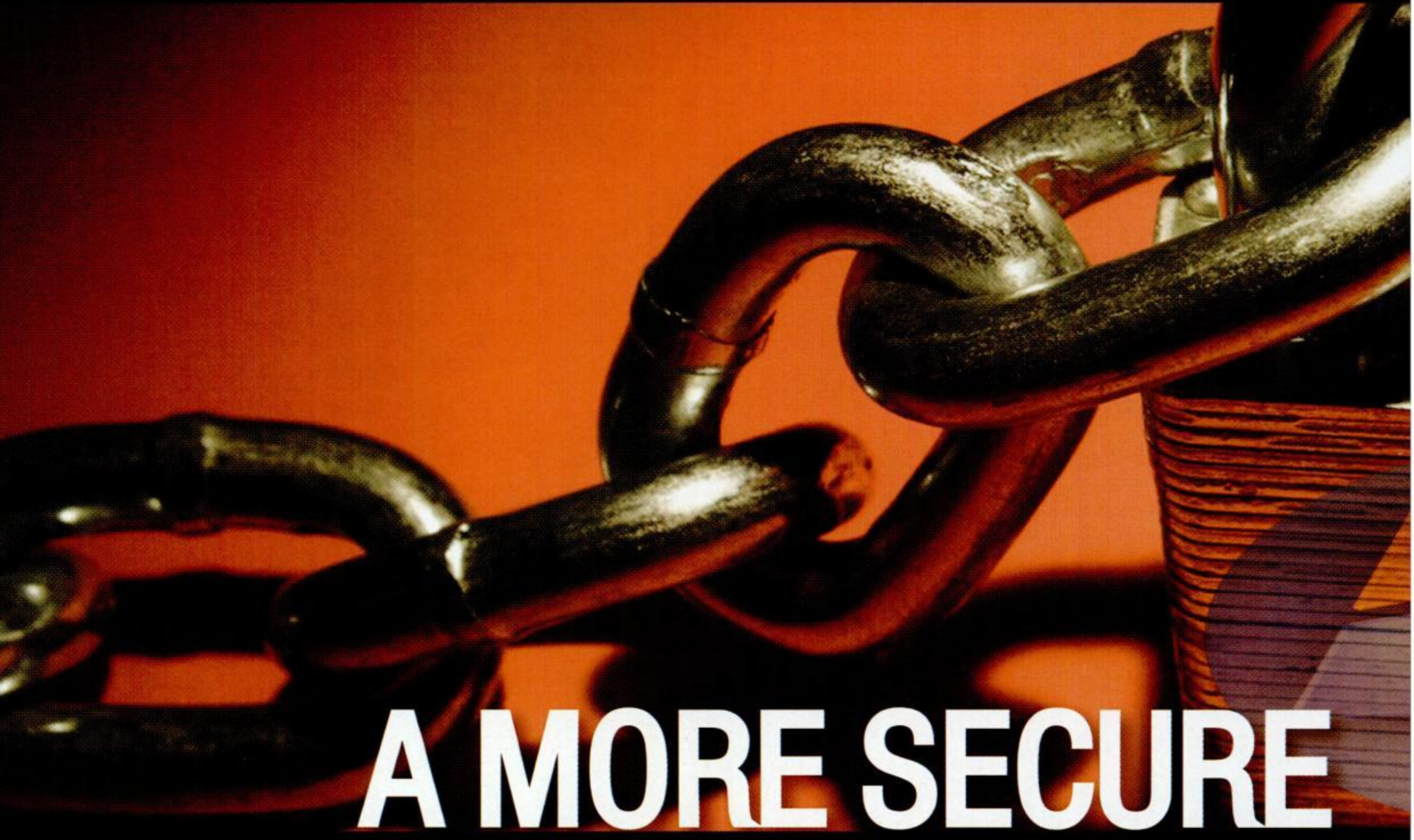
Walling Data Systems



A MORE SECURE

VISTA STICKS ITS THUMBS

Okay, so Vista's finally here and we're all eating our collective hats because its release did not slip to 2008. With that out of the way, there's been a great deal made about the security improvements that Vista includes. Highlights include better user account security, an improved firewall, built-in spyware protection, and the inclusion of robust parental control features.

The OS may just now be hitting retailers for consumers, but we've been test-driving it for months and although much has changed through the beta testing cycle, the security features built into Windows Vista, the final release candidate, and now the retail releases look solid. Only time will tell whether Microsoft's latest offspring will be able to stand up to the security challenges that it'll face, but we're definitely encouraged by the direction in which things appear to be headed. With better protection on our minds, we offer you a sneak peak at Windows Vista's major security improvements and how they'll affect users like you and your family.

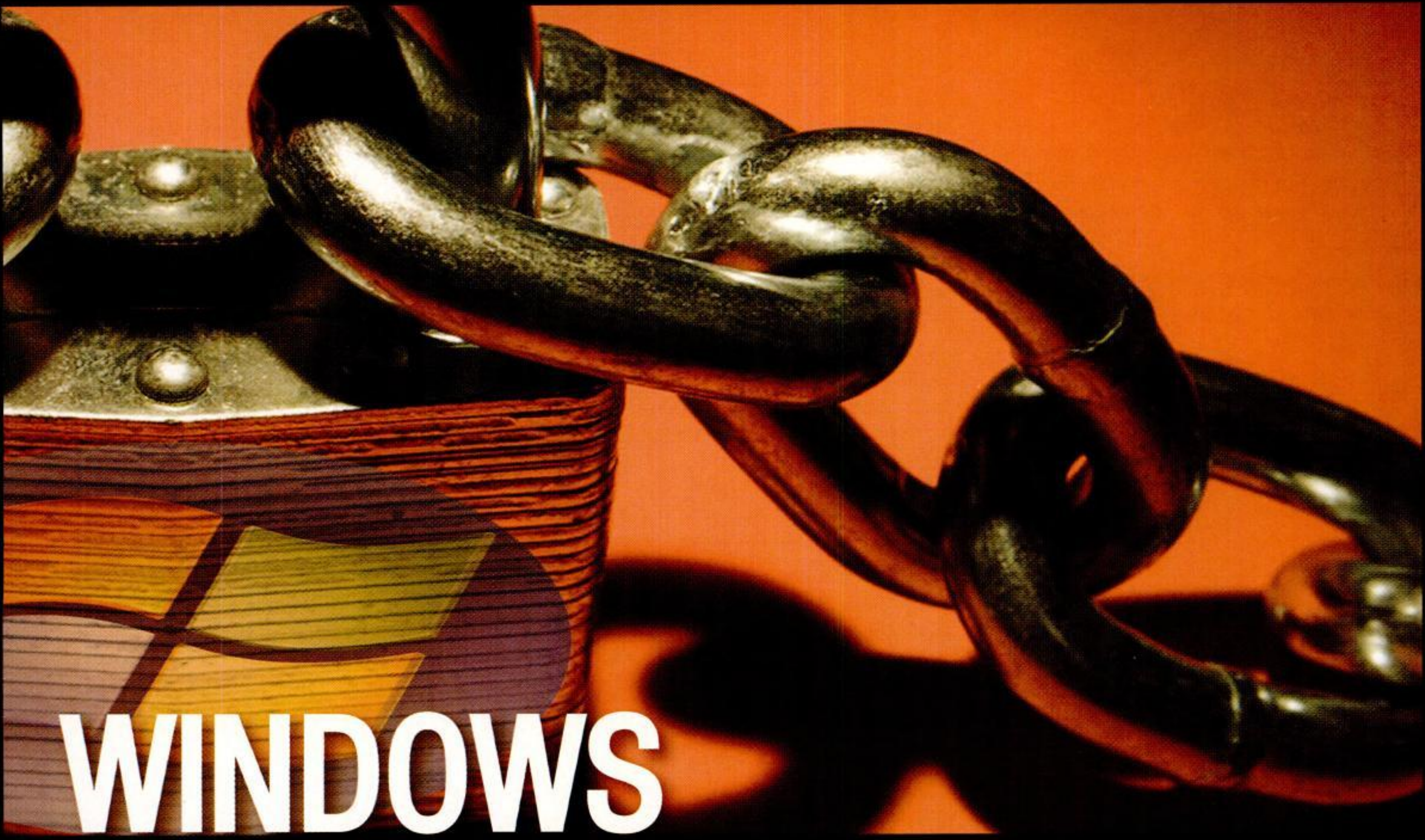
REVISITING USER ACCOUNTS

You're no doubt familiar with the idea behind user accounts. When each user of a shared Windows system is provided with one of their own, everything from desktop settings to personal documents is kept neatly divided. Unfortunately, history has shown that while most computers are configured with different user accounts, they're almost always of the Administrator type.

In the Windows world an Administrator can do anything, from installing software to disabling security features. This everyone-cando-everything approach to system security was the driving force behind most of the exploits that mangled millions of Windows systems into the perfect breeding ground for viruses, worms, spyware and worse.

In the world of Windows Vista, user accounts and their importance from a system security perspective are a top priority. Administrator accounts still exist, but there's warning after warning about not using them as your everyday account. For better security, all users should be assigned what are now called Standard user accounts, similar to the Limited variety in Windows XP. See the walkthrough on page 74 for details on setting these up.

There are five standard editions of Windows Vista: Business, Enterprise, Home Basic, Home Premium and Ultimate

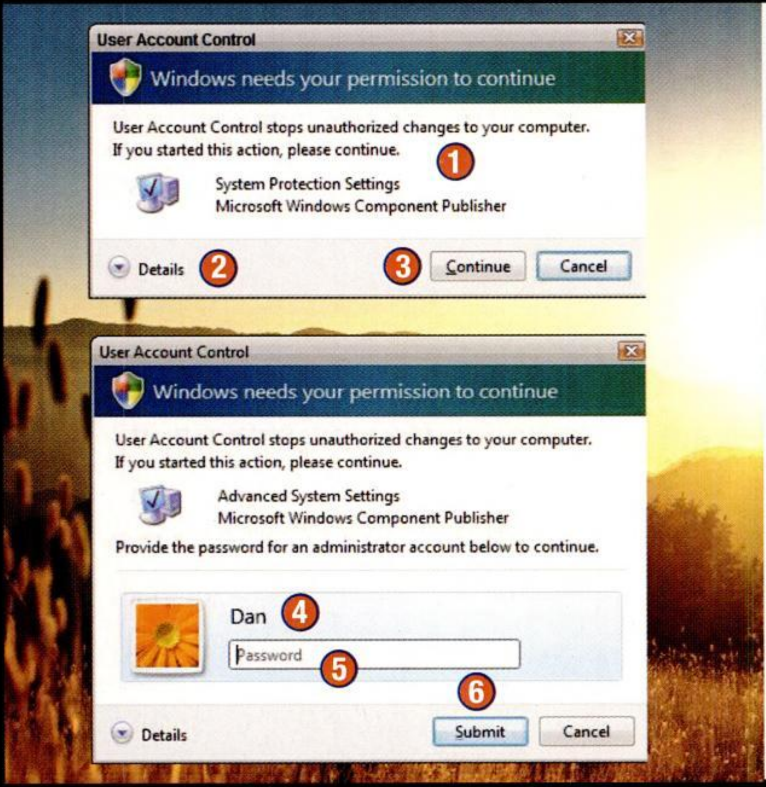


WINDOWS

IN THE HOLES IN WINDOWS XP'S DYKE

BY DAN DINICOLO

GETTING TO KNOW USER ACCOUNT CONTROL



User Account Control

Windows needs your permission to continue

User Account Control stops unauthorized changes to your computer.
If you started this action, please continue.

System Protection Settings
Microsoft Windows Component Publisher

User Account Control

Windows needs your permission to continue

User Account Control stops unauthorized changes to your computer.
If you started this action, please continue.

Advanced System Settings
Microsoft Windows Component Publisher

Provide the password for an administrator account below to continue.

Dan

① **ADMIN TASK**
This User Account Control window is the one that appears when a user logged as Administrator tries to perform an administrative task.

② **INFORMATION WINDOW**
The body of the message will provide basic information about the task being performed. Click Details to obtain more detail on the programs or processes involved.

③ **EXTRA PRIVILEGES**
When logged on as Administrator, the UAC window alerts you that a task requiring elevated privileges has been requested.

④ **ARE YOU A STANDARD USER?**
This UAC window is the one displayed to Standard users when they attempt to perform a task requiring Administrative privileges.

⑤ **PASSWORD REQUEST**
A Standard user will need to click an Administrator name in this list and supply the right password in this box.

⑥ **SUBMIT PASSWORD**
Clicking Submit will enable the task to be completed with Administrative privileges.

Continued on page 74

Continued from page 73

We know – you tried using Limited accounts in XP but it was too much of a hassle. After discovering that they couldn't install most programs or change settings with a Limited user account in XP, most users switched back to the Administrator variety. This was great from a usability perspective, but terrible from a security point of view.

Thankfully, Microsoft has paid attention to our complaints. The good news is that it's no longer an issue with Windows Vista. A new feature called User Account Control (UAC) ensures that only those users who should have Administrator powers have them, and then only for as long as they're actually needed.

GETTING TO KNOW UAC

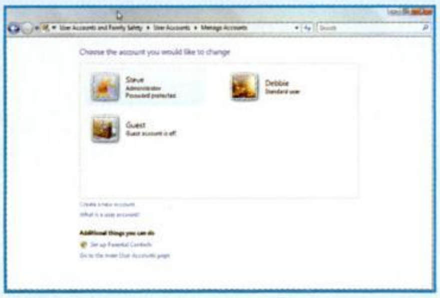
Perhaps the best thing about UAC is that there's really not much to it. When you log on with a Standard user account and try to perform any task that requires administrative powers, such as installing software or changing security settings, UAC stops everything cold. A dialog appears, prompting you to select an Administrator username and enter an associated password. The task then completes under the powers of the Administrator account specified, and returns you to privileges associated with your Standard account. There's no hassle with logging on and off; as long as you have access to an Administrator password, you're good to go. Without it, you can't complete the task.

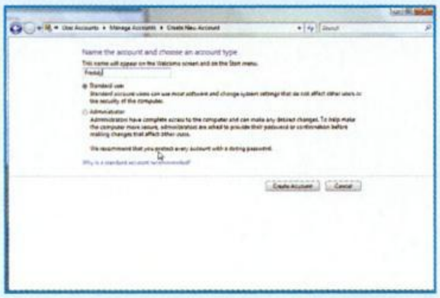
Of course, this "new" concept relies on you assigning all users Standard accounts and then guarding your Administrator password. It may not seem terribly important right now, but other powerful new features such as Parental Controls rely on getting this part right. If your children or their friends can install software at will or meddle with firewall settings, your system doesn't stand much of a chance. For details on interacting with UAC, see the sidebar on the previous page.

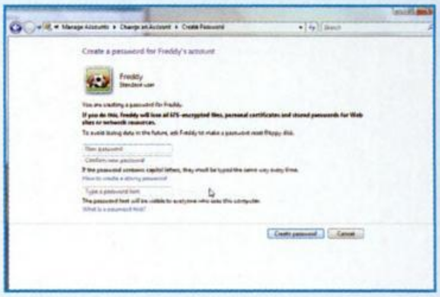
5 Quick Tips!

- Assign every user their own Standard user account. Ensure that they use a strong password.
- If you don't assign children a Standard user account you won't be able to restrict their PC usage or online activities with the Parental Controls feature.
- Switch user accounts from the Administrator to the Standard type via User Accounts in Control Panel.
- Right-click any program and select 'Run as administrator' to open it with Admin privileges.
- Protect the passwords associated with Admin accounts

CREATE USER ACCOUNTS IN WINDOWS VISTA







1. User accounts are created by Administrators from the User Accounts applet in Control Panel. Click Manage Accounts to access this. This enables you to manage existing accounts, create new accounts and learn about features like Parental Controls.

2. Click 'Create a new user account' and then enter a logon name for the new user. Every user should be assigned a personal account of the Standard type as shown here. Click Create Account to complete the process.

3. After they log on with their new account for the first time, encourage users to open User Accounts in Control Panel to add a password to their account. All user accounts should be protected by a password known only to that user, to ensure that features like Parental Controls act as intended.

Vista's Security Software Arsenal

Some things old, some things new, some things borrowed, some things still a little blue...

While proper user account security may form the foundation of a secure Windows system, Vista's built-in security tools can help to ensure you build one very solid structure. All of the core tools will be familiar to experienced XP users, but each includes improvements over previous versions. Security Center is now more comprehensive, keeping Windows updated is easier, Windows Defender provides built-in spyware protection and scanning capabilities and Windows Firewall finally offers the outbound traffic filtering capabilities that it's always been lacking.

While the security toolkit that's currently included with Vista is better than what's provided in XP, Microsoft has still made some questionable decisions with the default configuration of Windows Firewall, something we'll touch on shortly.

Over 30,000 people were involved with beta testing Vista. The release of Beta 1 became the largest download in internet history.

THE NEW SECURITY CENTER

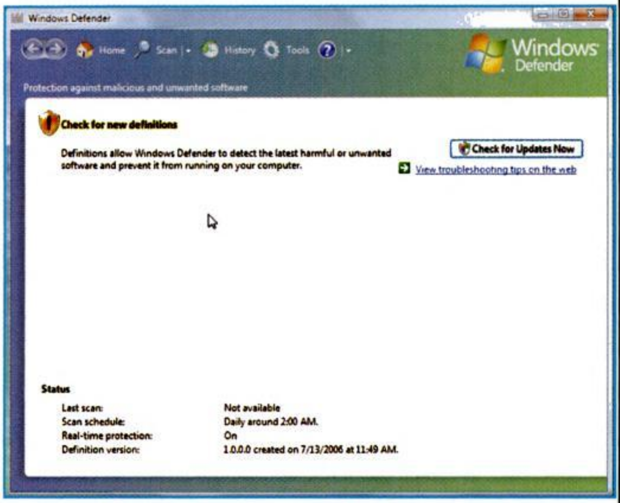
When it was first introduced in XP via Service Pack 2, we heralded the birth of Security Center. Between the Control Panel applet and the security warning balloon messages about the status of your firewall, Automatic Updates and anti-virus software, we believed the approach to be exactly what most users needed.

Microsoft has now expanded Vista's Security Center to not only include the security status information included in XP, but also information about your anti-spyware software, the status of the User Account Control feature and whether Internet Explorer is configured with 'safe' recommended settings. There's not much else to say except that Security Center will keep you informed of your PC's security situation. The tool is slightly different than it was under XP, but so is just about everything in Vista. Essentially, Security Center has improved and does a better job of ensuring that your PC is protected to a minimum standard.

AUTOMATIC UPDATES

If you don't look too hard, you won't even notice changes to the Automatic Update settings that'll keep Windows Vista patched with the latest security updates and Service Packs automatically. As with XP, Automatic Updates are enabled by default under Vista and there's little need to mess with these settings.

Understanding that some users still prefer to exercise a little more control over the update process, however, Windows Vista includes a improved version of Windows Update built into the OS. Rather than force you to fire up IE to visit the Microsoft Update Web site, Vista's Windows Update Control Panel applet enables you to check for updates on your own and then decide which to install and which to ignore. Automatic Updates will always be a safer bet for most users, but it's nice to see that Microsoft is still willing to let those who want to go it alone to do so.


Windows Defender
Home
Scan
History
Tools
Windows Defender
Protection against malicious and unwanted software
Check for Updates Now
View troubleshooting tips on the web

Check for new definitions

Definitions allow Windows Defender to detect the latest harmful or unwanted software and prevent it from running on your computer.

Status

Last scan: Not available
Scan schedule: Daily around 2:00 AM.
Real-time protection: On
Definition version: 1.0.0.0 created on 7/13/2006 at 11:49 AM.

Previously available via Windows Update for XP, Windows Defender is now integrated with Vista's Security Center, and it should be updated frequently to stay on top of new spyware releases.

FIGHTING SPYWARE

Unsurprisingly, Microsoft's native anti-spyware tool, Windows Defender, is built into Windows Vista. The beta release has been available for use with XP for some time, and the beta label is now officially dropped with the final release of Vista (and the tool still includes access to Microsoft's SpyNet community). If you're already using Defender with XP, there's not a whole lot new to report beside the tool's new-found integration with Security Center.

Of course, there are still users who won't want to rely on an anti-spyware tool from the same company whose software managed to acquire an infection, so you'll still have the option of installing an anti-spyware solution from a third party. We're curious to see what happens in this space in the months that follow Vista's release; assuming that most users start with a clean Vista installation and don't do anything silly that will muck up the works, Windows Defender should be enough to keep a PC spyware-free.

WINDOWS FIREWALL RELOADED

Some of the harshest criticism levelled against Windows XP and its built-in firewall component (Windows Firewall) was a direct result of its lack of outbound traffic filtering capabilities. By default, XP's version of Windows Firewall appropriately blocked almost all incoming connections but didn't do anything to block or even manage those leaving one's system. This led to a situation where pests ranging from worms to spyware could make use of your Internet connection with impunity. Third-party personal firewall software developers wasted no time in letting the world know that this was a danger and most experienced user quickly set their sites on alternatives like ZoneAlarm, Sygate Personal Firewall and the like.

Unfortunately, it appears that Microsoft didn't get the message with respect to its firewall's problems. By default, Vista's version of Windows Firewall filters incoming traffic, but does nothing to stop outbound connections. Vista's default settings allow all outbound connections.

This might be acceptable if the software hadn't changed, but the fact is that Windows Firewall in Vista does include the ability to filter outbound traffic. It can be configured to block connections by programs, protocols, and ports. Yet, for reasons presumably known only to Microsoft,

Continued on page 76

FIGHTING SPAM WITH WINDOWS MAIL

The successor to Outlook Express (finally) includes built-in junk mail controls

Everyone hates spam, but it's important to remember that junk email messages can be just as much a security concern as they are an annoyance. Thankfully, Windows Vista users will finally get a little spam relief via the junk mail filtering capabilities included in Microsoft's new built-in email program, Windows Mail.

If you've ever used the junk mail filtering capabilities built into Hotmail, Windows Mail's settings will be familiar. You set the level of junk mail filtering and Windows Mail will deal with incoming messages as per your preferences. Options for dealing with messages include 'No automatic filtering' (only messages from blocked senders are moved to the Junk E-Mail folder), Low (where only the most common junk messages will be considered spam), High (more aggressive filtering, but one that may occasionally tag legitimate messages as junk) and 'Safe list only' (a white-listing technique where only messages from users in your address book or safe list are considered not be spam). The Low option is enforced by default, but these settings can be changed from within Tools >Junk E-Mail Options. We're not suggesting that the new anti-spam capabilities of Windows Mail will guarantee an end to the spam problem, but they'll help to keep your Inbox a little bit safer.

Continued from page 75

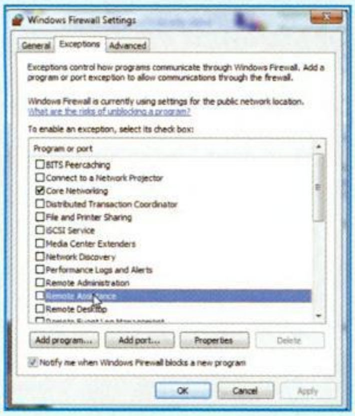
Windows Firewall has been configured to allow all connections from your computer to the Internet without restriction.

If you want to take advantage of the outbound filtering capabilities of Windows Firewall, you'll need to roll up your sleeves and get to work. The tool used to configure such an 'advanced' expedition is called Windows Firewall with Advanced Security and it's not pretty. Not even close, actually. In fact, it's a whole lot easier to mess things up royally than it is to make your computer any safer. It will take some time to see how this pans out, but this may be the reason third-party firewall options like ZoneAlarm will remain the most effective and appropriate option for most users.

Tip!

Use Vista's Search bar (where the Run command used to be) to type the first few letters of the program or file you're looking for – shortcuts will appear instantly!

WORKING WITH WINDOWS FIREWALL


Windows Firewall Settings
General
Exceptions
Advanced
Add program...
Add port...
Properties
Delete
OK
Cancel
Apply

Exceptions control how programs communicate through Windows Firewall. Add a program or port exception to allow communications through the firewall.

Windows Firewall is currently using settings for the public network location.
What are the risks of unblocking a program?

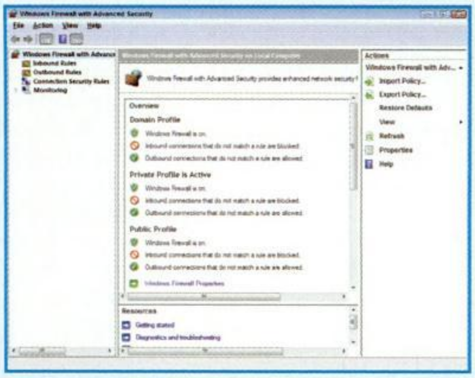
To enable an exception, select its check box:

Program or port
- ☐ BITS Peercaching
- ☐ Connect to a Network Projector
- ☑ Core Networking
- ☐ Distributed Transaction Coordinator
- ☐ File and Printer Sharing
- ☐ iSCSI Service
- ☐ Media Center Extenders
- ☐ Network Discovery
- ☐ Performance Logs and Alerts
- ☐ Remote Administration
- ☐ Remote Assistance
- ☐ Remote Desktop

☑ Notify me when Windows Firewall blocks a new program

1

If you don't want to take advantage of the new outbound filtering capabilities in Windows Firewall, you can still configure settings via the Windows Firewall applet in Control Panel. Like in Windows XP, allowed inbound connections can be configured via the Exceptions tab.


Windows Firewall with Advanced Security
File
Action
View
Help
Windows Firewall with Advance
Inbound Rules
Outbound Rules
Connection Security Rules
Monitoring
Actions
Windows Firewall with Adv...
Import Policy...
Export Policy...
Restore Defaults
View
Refresh
Properties
Help
Resources
Getting started
Diagnostics and troubleshooting

Windows Firewall with Advanced Security provides enhanced network security

Overview

Domain Profile
- Windows Firewall is on.
- Inbound connections that do not match a rule are blocked.
- Outbound connections that do not match a rule are allowed.

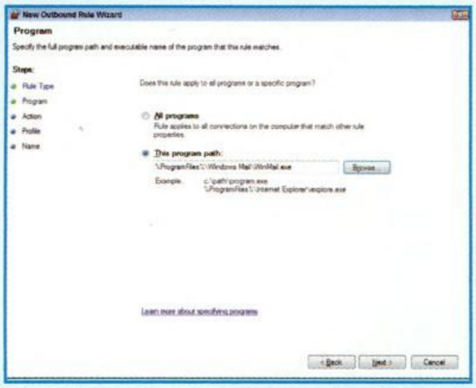
Private Profile is Active
- Windows Firewall is on.
- Inbound connections that do not match a rule are blocked.
- Outbound connections that do not match a rule are allowed.

Public Profile
- Windows Firewall is on.
- Inbound connections that do not match a rule are blocked.
- Outbound connections that do not match a rule are allowed.

Windows Firewall Properties

2

To take advantage of Windows Firewall you'll need to visit the Windows Firewall with Advanced Security tool, found under Administrative Tools in Control Panel > System and Maintenance. The Overview screen details the setup of different profiles. Use the links and menu items to make configuration changes.


New Outbound Rule Wizard
Steps:
Rule Type
Program
Action
Profile
Name
Browse...
Learn more about specifying programs
< Back
Next >
Cancel

Program

Specify the full program path and executable name of the program that this rule matches.

Does this rule apply to all programs or a specific program?

○ All programs
Rule applies to all connections on the computer that match other rule properties.

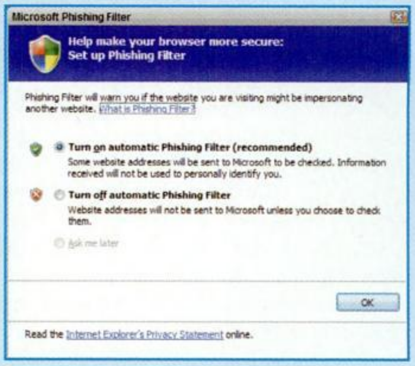
● This program path:
%ProgramFiles%\Windows Mail\WinMail.exe
Example: c:\path\program.exe
%ProgramFiles%\Internet Explorer\iexplore.exe

3

To create a new firewall rule, select either Inbound Rules or Outbound Rules and then click New Rule. Follow the steps in the New Rule Wizard to create your rule by ports and protocols or on a program basis. Complete the wizard steps to enforce your new inbound or outbound rule.

HERE PHISHY, PHISHY…

IE7 and Windows Mail join forces in a bid to ward off phishing attempts


Microsoft Phishing Filter
What is Phishing Filter?
OK
Internet Explorer's Privacy Statement

Help make your browser more secure:
Set up Phishing Filter

Phishing Filter will warn you if the website you are visiting might be impersonating another website. What is Phishing Filter?

● **Turn on automatic Phishing Filter (recommended)**
Some website addresses will be sent to Microsoft to be checked. Information received will not be used to personally identify you.

○ **Turn off automatic Phishing Filter**
Website addresses will not be sent to Microsoft unless you choose to check them.

○ Ask me later

Read the Internet Explorer's Privacy Statement online.

IE7's Phishing Filter reduces the probability that you'll fall prey to phishing-related scams.

Using a new feature built into IE7 and Windows Mail – Phishing Filter – users will be better protected against phishing-related threats that might otherwise lead to them handing out sensitive username and password information to bogus Web sites. Phishing Filter gets the job done in three ways. First, IE7 stores a list of legitimate Web sites on your PC, and compares the sites you visit to this list. Next, Phishing Filter keeps an eye open for suspicious Web sites, for sites where link details and actually addresses don't match up (for example, a Web page that claims to be part of eBay, but with addresses pointing to some unusual destination). Finally, Phishing Filter enables you to submit suspect sites to Microsoft for them to be examined more closely for phishing-related scams.

Most phishing scams arrive via email, and Windows Mail treats these messages as junk by default. However, you can also check the status of a site you're visiting at any time by selecting Tools > Phishing Filter > Check This Web site within IE7 at any time. The resulting message will help you to decide whether a site is phishing or legitimate.

Putting Parents in the Driver's Seat

The best new security feature in Windows Vista enables parents to control how the family PC is used, and where children are able to venture online Implementing Parental Controls

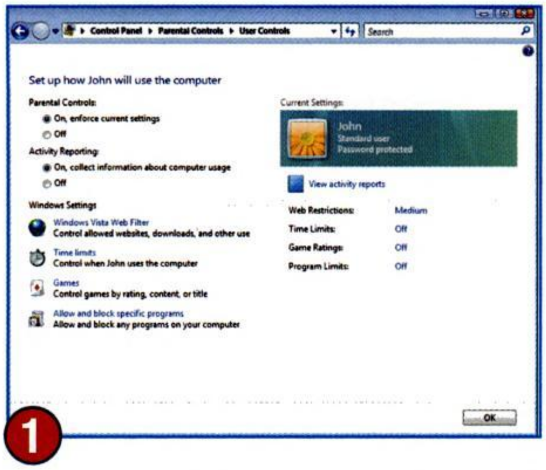
If there's one good reason to consider making the switch to Windows Vista, it's the new Parental Controls feature. Once parents configure user accounts correctly – assigning children their own personal Standard user account – they can then configure PC and Internet use restrictions on all children. This includes (but isn't limited to) dictating the types of Web sites they can visit, controlling the programs they're allowed to run, enforcing restrictions on the games they can play, limiting their ability to use file-sharing programs, and even laying down the law as to the times they're allowed to use the home computer. If required, Parental Controls can also be configured to log activity reports for parents to review as shown in the annotation.

For parents who care about how (and when) their children use the home computer and venture online, this feature alone will make Vista a worthwhile investment. There's little question that parents have had a tough time enforcing the rules using the honor system, and the Internet really isn't a safe place for kids to roam in a general sense. Thankfully, Vista enables different sets of restrictions to be applied to different users, and with controls implemented in the network stack they'll work with all programs, including alternative Web browsers such as Firefox. For details on configuring Parental Controls, see the walkthrough below. **MPC**

FURTHER HELP

If you're looking to learn more about new features in Windows Vista, including those related to security, be sure to check out the articles (including one about User Accounts and Parental controls by Dan!) at the Windows Vista Community Web site: **www.microsoft.com/windowsvista/community/.**

IMPLEMENTING PARENTAL CONTROLS



1

Set up how John will use the computer

Parental Controls:
● On, enforce current settings
○ Off

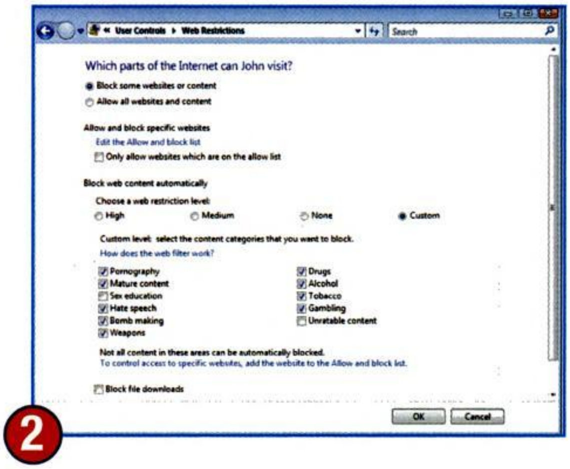
Activity Reporting:
● On, collect information about computer usage
○ Off

Windows Settings
Windows Vista Web Filter
Control allowed websites, downloads, and other use
Time limits
Control when John uses the computer
Games
Control games by rating, content, or title
Allow and block specific programs
Allow and block any programs on your computer

Current Settings:
John
Standard user
Password protected

View activity reports

Web Restrictions: Medium
Time Limits: Off
Game Ratings: Off
Program Limits: Off



2

Which parts of the Internet can John visit?
● Block some websites or content
○ Allow all websites and content

Allow and block specific websites
Edit the Allow and block list
☐ Only allow websites which are on the allow list

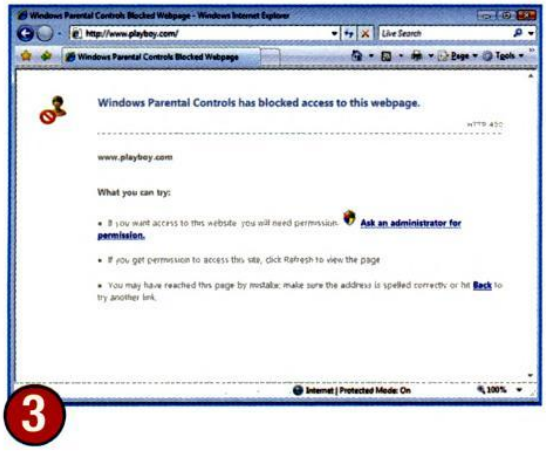
Block web content automatically
Choose a web restriction level:
○ High ○ Medium ○ None ● Custom

Custom level: select the content categories that you want to block.
How does the web filter work?

☑ Pornography
☑ Mature content
☐ Sex education
☑ Hate speech
☑ Bomb making
☑ Weapons
☑ Drugs
☑ Alcohol
☑ Tobacco
☑ Gambling
☐ Unratable content

Not all content in these areas can be automatically blocked.
To control access to specific websites, add the website to the Allow and block list.

☐ Block file downloads


Windows Parental Controls Blocked Webpage - Windows Internet Explorer
http://www.playboy.com/
Live Search
Windows Parental Controls Blocked Webpage
Page
Tools
Internet | Protected Mode: On
100%

3

Windows Parental Controls has blocked access to this webpage.

HTTP 450

www.playboy.com

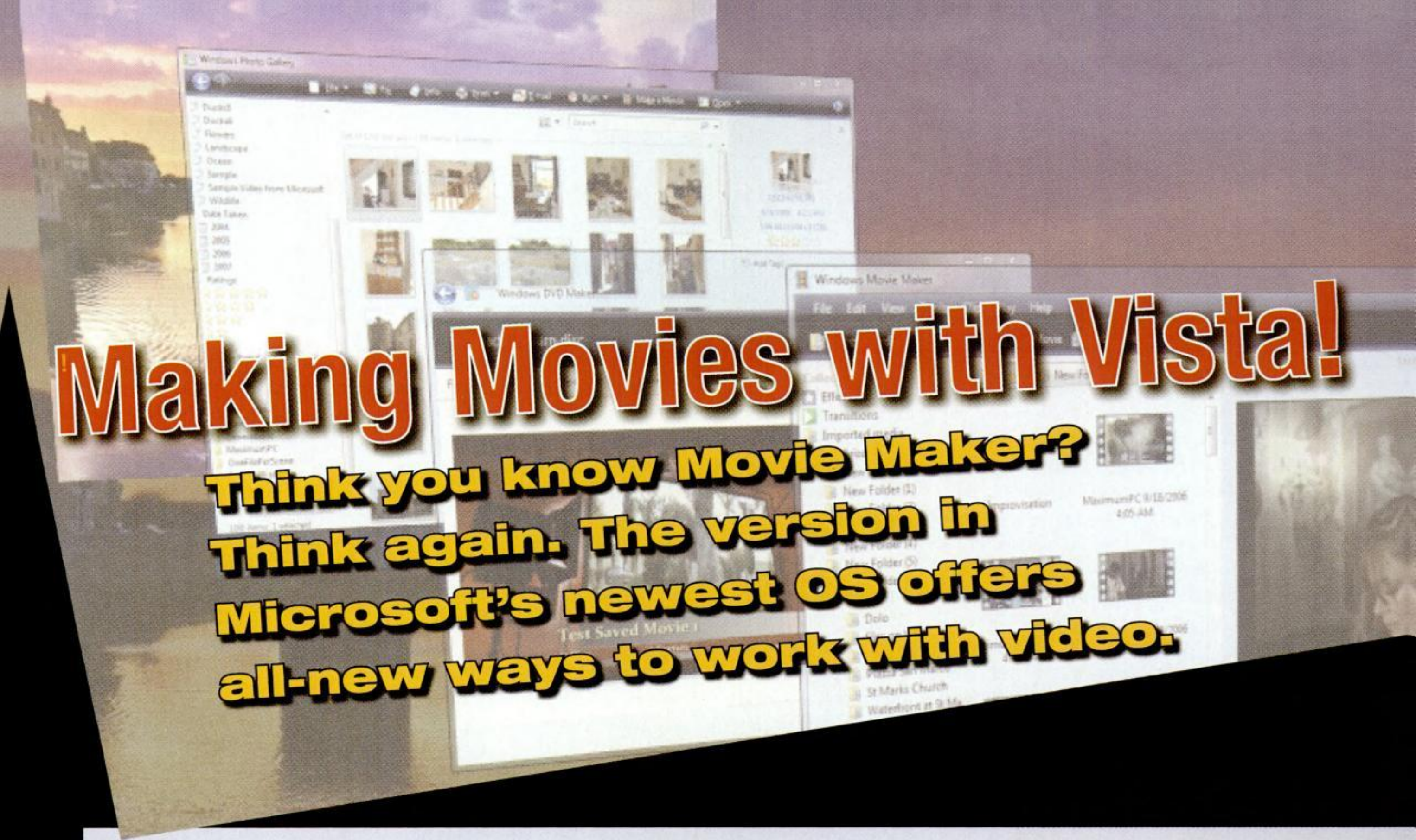
What you can try:

- If you want access to this website, you will need permission. **Ask an administrator for permission.**
- If you get permission to access this site, click Refresh to view the page
- You may have reached this page by mistake: make sure the address is spelled correctly or hit **Back** to try another link.

① Open the Parental Controls applet in Control Panel and then click the name of the Standard user. By default, Parental Controls will be disabled. When first turned on, medium Web filtering settings will apply, and activity reporting will be enabled.

② Click the Windows Vista Web Filter link to configure your preferred Web filtering settings for the user. You can also use this screen to block file downloads, allow access to specific sites only, and more. Click OK after making changes.

③ Implement other control options from the Windows setting section of the main parental controls screen. The screen shows what users will be see when Parental Controls block access to a particular Web site based on the Web content filtering settings you've applied.



Making Movies with Vista!

Think you know Movie Maker? Think again. The version in Microsoft's newest OS offers all-new ways to work with video.

The marketing buzz about Vista is out there, and by golly, the final release is now on the shelves for you to buy (or not). However, we know from experience that beta testing—and the final flurry of programming changes—can't possibly find and fix *all* the quirks, issues, and bugs in software as complex as the Vista operating system.

Indeed, I reported some issues during my beta testing, and noted more as I prepared this article using the final retail release of the OS. Indubitably, many remain to be found over time, and I'll be recording (and posting workarounds for) them on my web site. In these respects, Vista is no different from XP.

Some of Vista's minor digital-media "quirks" include *Photo Gallery* and *Movie Maker* displaying different dates and times for video clips—one being the date the clips were imported to the computer and the other being the time the scene was recorded on the camcorder.

The most severe issue I ran into was that I had to press the computer's on/off switch for a total system reboot after other methods failed to close a "hung" *Movie Maker* session. Many events of this sort are triggered by the user—I started a narration without having a microphone plugged in. It's been a long time since I've been unable to close an app without taking such drastic action.

The marketing material tells us how things are expected to work. The rest of the story—the even more exciting thing for me—are the user experiences that will roll out after Vista.

Writing this article helped me look into many nooks and crannies of the final release of Vista that I hadn't explored during beta testing. I was surprised by how impressed I was with the movie-making processes. Note that I don't refer to *Movie Maker* itself when I say that: The experiences of Vista seem less about an app or feature, and more about how well the parts work together to make it easier for you to make a movie…or perhaps I should say "make a DVD."

This article is based on a clean install of the Ultimate Edition of the Vista operating system. I'll start by summarizing the main short-comings of *Movie Maker* in XP, and then see if they've been resolved in Vista. I'll then illustrate Vista's movie-making processes.

BY JOHN "PAPAJOHN" BUECHLER

"PapaJohn" is an acknowledged *Windows Movie Maker* and *Photo Story* expert. He has received Microsoft MVP (Most Valuable Professional) awards for each of the past five years, written books about *Movie Maker*, and contributed articles to *Maximum PC* about *Windows Movie Maker* and *Photo Story*.

He beta-tested Vista extensively and is now running the final release of the Ultimate Edition. In this article he notes the main short-comings of XP's *Movie Maker 2*, and determines if they've been resolved in Vista. He then illustrates Vista's movie-making process.

PapaJohn's website (**www.papajohn.org**) has been expanded to cover Vista's movie-making capabilities. Each of the site's Vista-related pages has a "Tips" section at the bottom, and he's continually updating this advice as he explores and learns more about Vista's digital capabilities.

Movie Maker's XP PITFALLS

Movie Maker's main attraction was that it was free—it came bundled with the XP operating system. It could be used adroitly to create some fairly sophisticated movies, but it fell short of more robust third-party apps in key areas:

- Version 2.0 crashed and hung too often. It doesn't matter to a user what

clashes with what to cause it: It's difficult and beyond the skills of most users to resolve issues related to codecs or Direct Show filters.

Movie Maker 2.1 introduced a "compatibility" tab to make it easier to resolve codec issues, but Microsoft said a DirectShow filter issue was due to a bug in the DirectShow component that caches the information about effects and transitions. The company provided some guidance about how to work around the bug.

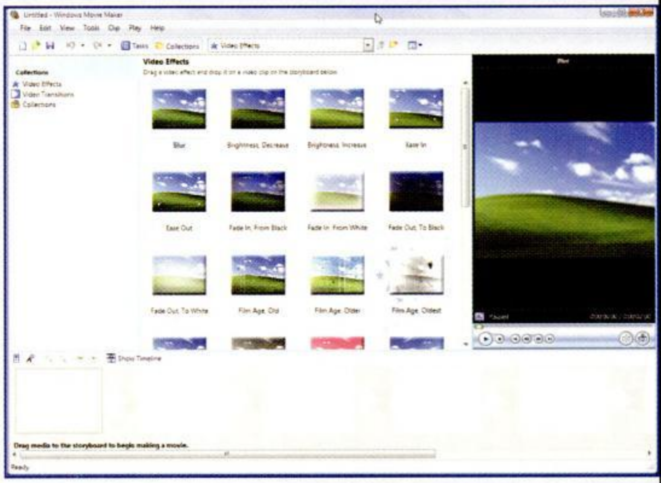
> Files such as recorded TV programs and those on DVDs couldn't be used without a good MPEG-2 codec that worked with *Movie Maker*, and Microsoft didn't provide one or suggest which one to get. It encouraged users to try the many available options, but reports of success were few and far between.

The user community found it easier to convert MPEG-2 files to ones that would work in *Movie Maker* projects. But conversions require other software and a working knowledge of codecs that only techies and geeks understand, not the casual home-video enthusiasts for whom the app was made.

> When *Movie Maker 2.0* added features to use special transitions, effects, and titles, it was enthusiastically received. But using them made projects more complex, and saving movies needed more computer memory. The extra memory wasn't always available, and there's no meter to gauge how much a project needs. If the needed extra space is small, closing other running apps *might* free up enough.

Adding more RAM or virtual memory often helped, but a 2GB memory limit seems to be a programmed limit, and the only way past it is to subdivide the project and render the movie in parts—another task beyond the scope of typical people.

> *Movie Maker*'s option to save a movie to a CD made users think DVD players would accept them, but they wouldn't. Existing players that supported the HighMat menu structure on the disc were limited to audio and picture files.


Untitled - Windows Movie Maker
File Edit View Tools Clip Play Help
Tasks
Collections
Video Effects
Collections
Video Effects
Video Transitions
Collections
Blur
Brightness, Decrease
Brightness, Increase
Ease In
Ease Out
Fade In, From Black
Fade In, From White
Fade Out, To Black
Fade Out, To White
Film Age, Old
Film Age, Older
Film Age, Oldest
Show Timeline
Ready

Video Effects

Drag a video effect and drop it on a video clip on the storyboard below.

Drag media to the storyboard to begin making a movie.

It's hard to knock an app that's free, but XP's *Movie Maker has* been criticized quite a bit.

For a long time Microsoft and its partners led users to believe new DVD players with the added feature were coming out.

These players never appeared. To get their movies to standard VCDs, SVCDs, or DVDs, people had to continue taking their saved movies to other disc-making software.

These shortfalls are still in the latest XP version of *Movie Maker*. Let's see if they've been addressed with Vista's release.

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MAKING MOVIES WITH VISTA

Continued from page 79

READY, SET, VISTA!

There's more to "making movies with Vista" than the *Movie Maker* program. Think of it more as a movie-making process that uses coordinated programs and wizards. As we see above, Vista offers lots of eye-candy at first glance.

What works and how it works depends on which version of Vista you have. The Home Premium and Ultimate versions include *Windows Movie Maker HD* (high-definition) and *Windows DVD Maker*. The Home Basic, Business, and Enterprise versions lack these tools. To enjoy Vista's new movie-making fruit, you'll need one of the first two versions.

If you've at all been into making movies with *MM* in the past, here's why you need a version of Vista with *MM HD* going forward:

> Changes to the Direct Show component in Vista should resolve any associated *Movie Maker* startup crashes for all users—it did for me. But the compatibility tab added by *MM 2.1* is still there, a clue that it's still needed to resolve codec-related issues, although I've not experienced any as of yet.

> *Movie Maker HD* in Vista's Home Premium and Ultimate versions can use DVD and recorded TV files in movie projects without having to go through conversions. The versions of Vista **without** *DVD Maker* won't have the new Microsoft MPEG-2 codec. People can either try again with a third-party MPEG-2 codec that works with *Movie Maker*, or continue doing the file conversions they do in XP.

> Under the hood" memory management is significantly enhanced for all versions. Movie projects that won't save in XP because they are too complex should do so easily in Vista. Those with the Home Premium and Ultimate versions can skip the rendering entirely, as *DVD Maker* accepts *Movie Maker* project files in addition to finished movies.

> Got HDTV? As stated above, the Home Premium and Ultimate versions have the new *Windows DVD Maker* program with the Microsoft MPEG-2 codec, **and** the capability to use and make HD (high-definition) videos.

So, if you're already into making home movies in XP, you'll want a version of Vista that has *DVD Maker*. If you're not yet making home movies and you get a version of Vista that *doesn't* include it, you'll be able to purchase an upgrade when you're ready.

WE'RE OFF TO SEE THE WIZARDS!

We'll now introduce the programs and wizards in Vista that are involved in making movies, and take you through a scenario in which we make a movie from camcorder tape to DVD, to illustrate why we think of it as a movie-making process rather than a *Movie Maker* app.

The key apps in Vista for preparing clips and making movies are:

> **Import Video Wizard** – to get camcorder footage into your Photo Gallery library, or to go directly from a camcorder tape to a burned DVD.

> **Windows Media Center** on Home Premium and Ultimate versions – to view libraries of still pictures, imported video clips, recorded TV, and music.

> **Windows Media Player (WMP) –** to listen to music, watch recorded TV shows, view video clips or DVDs, sync with portable media players, and burn audio discs or data CDs and DVDs.

> **Windows Photo Gallery –** to view and organize libraries of still pictures and video clips... with features to "fix" still pictures. To "fix" video clips, you'll need to continue using other software for anything beyond what you were able to do with XP's *Movie Maker*.

> **Windows Movie Maker –** to make movies as you do in the Windows XP version of the program. There are some enhanced features, such as full-quality project previews, seeing *each* frame during editing rather then every other one, and enhanced memory management when saving movies.

> **Windows Movie Maker (HD)** on Home Premium and Ultimate versions – to extend the basic app to high-definition movies.

> **Windows DVD Maker** on Home Premium and Ultimate versions – to author and burn standard DVDs, and to use the included MPEG-2 codec for easy use of DVD and recorded TV files.

> **AutoPlay Wizard –** to quickly and easily pass you to the right place to make data or video DVDs on Home Premium and Ultimate versions.

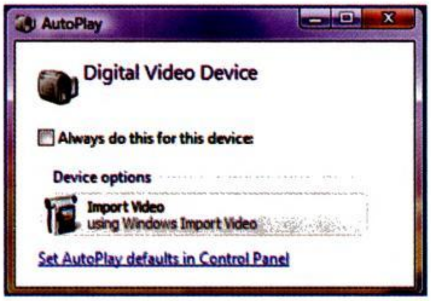
Photo Story wasn't included in XP (it's available via a free download), and it's not in Vista. The app runs well on Vista and will continue to be a key one in the movie-making toolboxes of people applying Ken Burns–style pans and zooms to high-quality still pictures. Vista's *Photo Gallery* app

will help edit pictures before adding them to a story project. Exposure, color adjustment, and the cropping feature provide user controls beyond the more basic ones included in *Photo Story*.

Let's Make a Movie!

Now let's go through a 15-step movie-creation scenario in which we transfer footage from a camcorder tape to a video DVD, using nothing more than the software included in Vista's Home Premium and Ultimate versions. You'll see the interactive wizardry and team-playing features of the apps in Vista, which are much-welcome enhancements from XP.

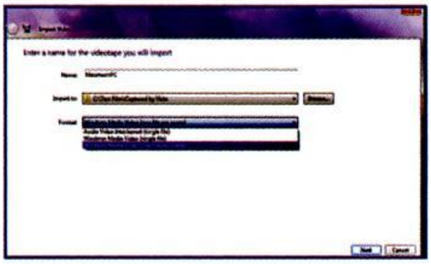
FROM CAMCORDER TAPE TO VIDEO DVD...


AutoPlay
Digital Video Device
☐ Always do this for this device:
Device options
Import Video
using Windows Import Video
Set AutoPlay defaults in Control Panel

STEP 1: Get Connected

Connect your mini-DV, digital8, or HD digital camcorder to the computer with a FireWire cable. Make sure no apps are open, and turn the switch to the VCR mode.

The **AutoPlay Wizard** gives you one choice: Import Video using the Import Video Wizard.

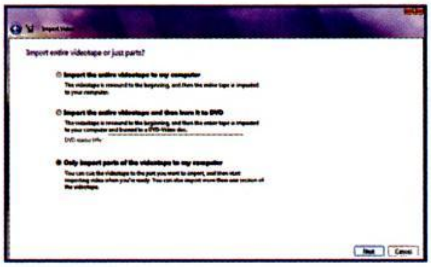

Enter a name for the videotape you will import

STEP 2: Name the File

Give your project a name, select a working folder, and choose a format, as we do in Figure 3.

The first choice of format is the standard DV-AVI file, which eats up about 13GB of drive space per hour of video. The other two choices give you high-quality WMV files at about 2GB per hour—one option is a single file, while the other is one file per camcorder scene.

We'll go with the last option for individual files.

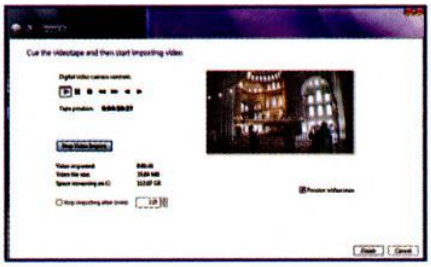

Import entire videotape or just parts?

STEP 3: Get Ready to Transfer

You can elect to slap the contents of the entire tape on the hard drive, and then take the shortcut and put all the raw footage on a DVD as quickly as possible. Or you can select only the parts of the tape you want.

We'll go with last option—"only import parts"— as we know the scenes we want to use are toward the end of the tape.

The option to go straight from tape to DVD is interesting. The wizards keep you watching as *Movie Maker* and *DVD Maker* are both skipped as apps. They work behind-the-scenes and make the choices for you. This is a nice means of archiving footage you may want to return to edit at a later date.

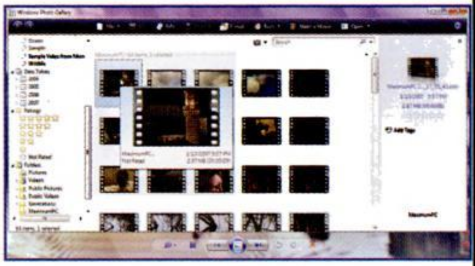

Cue the videotape and then start importing video.

STEP 4: Import Your Video

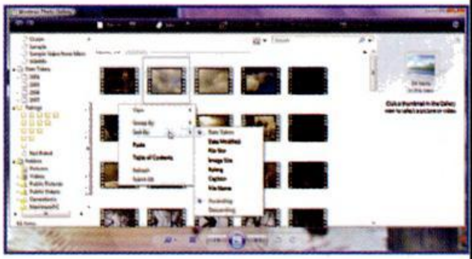
Now we hit the play button to cue the videotape and begin importing the footage from our trip to Istanbul this past summer. As you preview the process, you can stop and start the video as needed. When the scenes you want have passed, hit the Finish button. The Import Wizard will complete the file(s), close, and open **Photo Gallery**, where you'll see the newly captured clips in your library of pictures and video.

STEP 5: Review the Clips

The Import Wizard drops you off at the folder in the *Photo Gallery* app. If it's a new folder, it'll have only the new clips. If it's been used before, as the example above



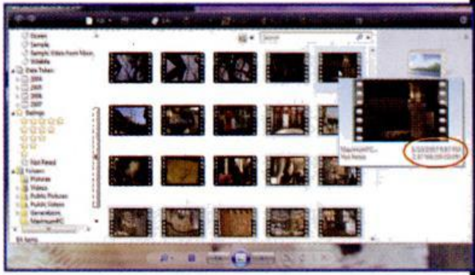
shows, the new clips will be mixed with those previously imported. At least it's not a random place in your vast multimedia library, or the last place you were at when you closed the *Gallery*, which was the case with XP.



STEP 6: Re-sort the Clips As Needed

To see the new clips in sequence in the folder, right-click in the folder space and then sort by Date Taken and Ascending order, which we do above.

It would seem that Date Taken would be derived from the tape's time code, but it's not. In the *Gallery* the displayed time info highlights the date and time the video was imported, not when it was taken. Later on in *Movie Maker* this property will be the date from the tape's time code. This was the first clue that the teamwork of Vista's apps and wizards isn't quite perfect.



Regardless of the date/time logic, the re-sorting arranged the clips properly from first to last.

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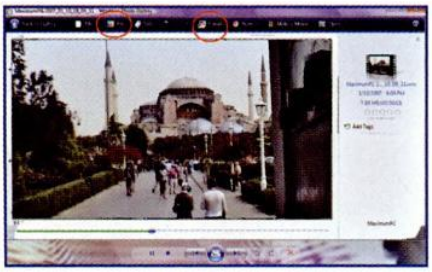
MAKING MOVIES WITH VISTA

Continued from page 81

STEP 7: Preview and Fix

If you listen to music while you work, XP systems have an annoying habit in which *Windows Media Player* stops the music every time you open a video clip, and doesn't return to the music when you finish. It's enough to drive you to listen to *iTunes* while you view video clips.

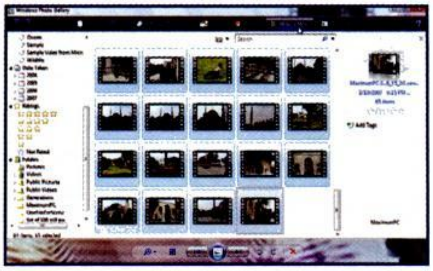
Vista resolves this gaff by adding a video viewer to *Photo Gallery*. Below, we show a clip being previewed while music in *WMP* continues. You can now satisfy your urge to listen to music while you sort and prep your video clips.



The easiest and often best way to resolve a bad clip is to delete it. If you don't have a good alternate, or if it's one really worth keeping but in need of serious fixing, take it to your favorite third-party video-editing utilities. *Photo Gallery* cutely offers the un-grayed "Fix" option in the menu, but selecting it produces a note saying "Video Files can't be edited using Photo Gallery." Yup, they can't be printed either, which is why that option is grayed out. The Fix option is functional for still pictures; are we seeing a clue that someday it'll be also functional for a video clip? Hopefully...but don't hold your breath!

Also note the menu option to email the clip. Vista will automatically fill in an email and attach the clip. If it happens to be a 2GB or 96MB video clip, that's what it'll attach. Know your email limits and be careful: the feature will downsize still pictures but not video clips.

STEP 8: Select Clips for a Movie

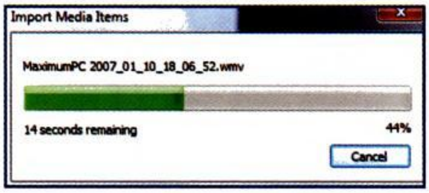


When you finish previewing, fixing, and discarding, select only the clips you want to use in a movie. It's sounds easy, and it is.

Sixty-five video clips were added to the *Gallery* folder from this capture session. Select them all at once and press the menu's "Make a Movie" option. That'll take you on another Wizardry ride. Hold on!

STEP 9: From Gallery to Movie Maker

Photo Gallery opens *Movie Maker* and the 65 clips go into a new collection.



Import Media Items

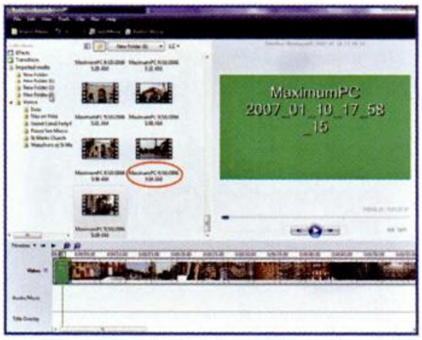
MaximumPC 2007_01_10_18_06_52.wmv

14 seconds remaining 44%

That's right: There are no more separate collections for each clip, as in XP! This change was made in response to requests from the user community. (Good job!)

STEP 10: From Collection to Timeline

The flow of the clips doesn't stop with the collection. *Movie Maker HD*'s "AutoMovie" feature now kicks in and the clips are deposited in the timeline of a new project.



The project gets some finishing touches with an opening title clip with text, transitions between clips, and closing credits.

Note the clip names in the collection versus the names we saw in *Photo Gallery*. We're now seeing the actual date and time of the camcorder shots in Istanbul versus the date and time of the importing into Vista.

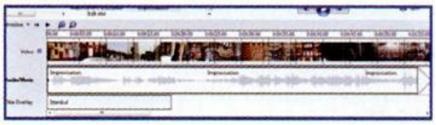
AutoMovie doesn't use all the footage of the selected clips: It analyzes them and drafts a movie project it thinks is good. You can accept its results or use them as your starting point.

STEP 11: Time to Do Some Editing

Now we're ready to drop clips that don't work and enhance what does. If you've used *Movie Maker* in XP, you'll find that Vista works the same way.

Double-click the title clip to open the editing feature. Change the title's font, the animation style, and the text. Drag it from the video track to the title overlay track so it appears over the first video clips. You can do this one little change in less than a minute and it'll really make you feel the movie taking shape. Do the same with the ending credits, and add your name as the director and producer.

Now, import music (if you wish) and drag it to the Audio/Music track.

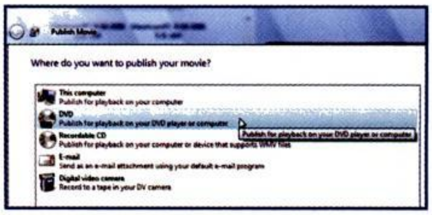


If you're eager to see the movie on a DVD, make one now. It's best to check the process at this point before spending endless hours editing.

STEP 12: To DVD We Go!

If you've used *Movie Maker* in XP, you've learned to save or render a movie to your hard drive as a DV-AVI or high-quality WMV file, and then wait seemingly forever for it to finish. You're in for a thrill in Vista: You don't need to render the movies from the project files! Add a movie project file to *DVD Maker* and it'll go right from these source files to the MPEG-2 files needed for the DVD. Whoop!

Select the DVD option from the publish menu, which is shown below.



Where do you want to publish your movie?

This computer
Publish for playback on your computer

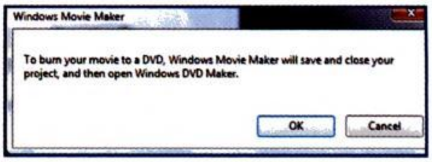
DVD
Publish for playback on your DVD player or computer

Recordable CD
Publish for playback on your computer or device that supports WMV files

E-mail
Send as an e-mail attachment using your default e-mail program

Digital video camera
Record to a tape in your DV camera

It's now time to change your XP *Movie Maker* habits: don't walk away or go to bed for the night. The screen below shows the note you'll get from *Movie Maker*.



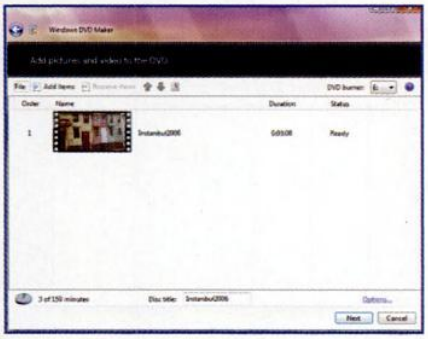
Windows Movie Maker

To burn your movie to a DVD, Windows Movie Maker will save and close your project, and then open Windows DVD Maker.

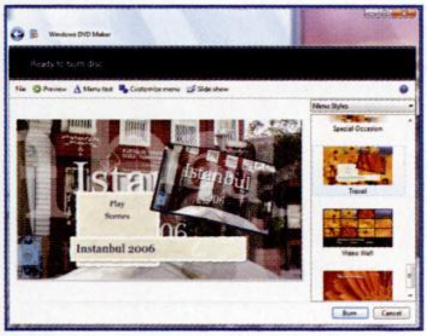
It'll do what it says! And most amazingly, it'll skip XP's slow rendering of the movie: In just a few seconds you'll be in *DVD Maker*, ready to move forward.

STEP 13: Author Your DVD

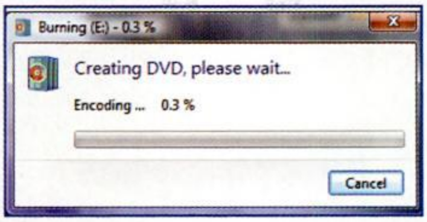
The next thing you'll see is the thumbnail of your movie in *DVD Maker.* If you wish, you can now add other items to the project, such as saved movies, a slideshow of still pictures, or other *Movie Maker* project files.


Windows DVD Maker
Add pictures and video to the DVD
File
Add items
DVD burner
Order
Name
Duration
Status
1
Instanbul2006
Ready
Disc title:
Options...
Next
Cancel

Select a style, tweak the title, add a background-music file for the DVD menu, make a few other choices, and you're finished!


Windows DVD Maker
Ready to burn disc
File
Preview
Menu text
Customize menu
Slide show
Menu Styles
Special Occasion
Travel
Video Wall
Instanbul 2006
Play
Scenes
Burn
Cancel

STEP 14: Burn the DVD!

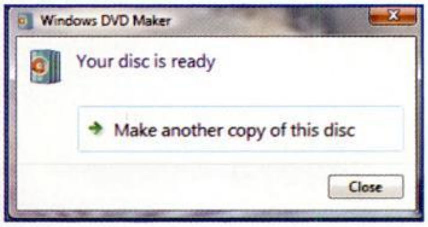


Burning (E:) - 0.3 %

Creating DVD, please wait...

Encoding ... 0.3 %

Press the Burn button. *DVD Maker* will use the *Movie Maker* project file you created for the spec for one movie, and the other files you added as additional clips that you can view via the DVD menu. It'll make the temporary files needed, burn the disc, and open the drive when it's ready for prime time.

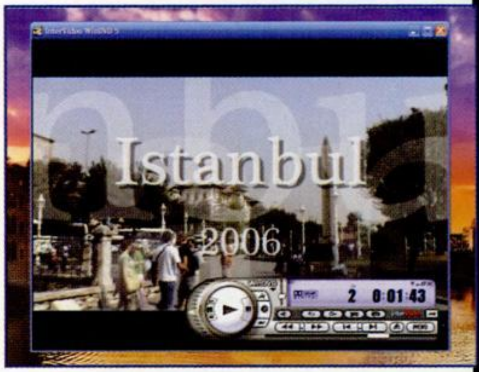


Windows DVD Maker

Your disc is ready

Make another copy of this disc
Close

Use this option to burn additional copies for all your friends and family—after you've checked the first copy, naturally. When you have enough, close it and *DVD Maker* will clean up the temporary files.


Istanbul
2006
2 0:01:43

STEP 15: Grab a Bucket of Popcorn!

Time to enjoy the fruits of your labors—and then make another one!

If you see things you want to tweak before making final copies of your masterpiece, by all means go back and fix 'em! Vista makes it easy to return to the project file and make changes.

That's it! We're finished! Time to sit back and enjoy our new masterpiece! MPC

Director's Commentary

With lots of ways to make Vista's movie-making apps and wizards work with each other, it's going to be fun exploring the possibilities. Even if, on the surface, *Movie Maker* looks and works mostly the same as it does in XP, try the new tricks that Vista's wizards present. And take full advantage of *DVD Maker*'s ability to use the *Movie Maker* project files directly.

Beware of the most direct path from digital camcorder to video DVD—which bypasses *Movie Maker* and *DVD Maker*—as it has a couple potential pitfalls:

- If you want the whole tape on a disc but you opt for each scene being imported as a separate file, when the tally of clips reaches 99, you'll learn that a *DVD Maker* project has a maximum video file limit of 99.

- If your system makes good discs at slow speed but coasters when burning at the default fast speed, you can change the burn speed in *DVD Maker*'s settings when using it as an app. However, the wizard takes the fast-track runs with the fastest burn speed, and you don't have an option to change it

Unified shader architecture translates to more efficient use of the GPU.

Support for subsurface scattering will deliver more realistic character skins.

The new geometry shader produces sophisticated 3D models.

WELCOME TO THE REVOLUTION!

The era of incremental improvements in PC graphics is over. The debuts of DirectX 10 and the first videocards that take advantage of it are fomenting radical and far-reaching changes in PC gaming—

We're sick to death of console weenies boasting that the Xbox 360 and the PS3 are going to render PC gaming obsolete. Innovations such as DirectX 10 and the introduction of several hot new GPUs available only for the PC will put those poseurs in their place.

These console systems do have impressive graphics—for gamers on a budget. But games running on a full-blown PC can tap into several times the processing horsepower just for graphics, never mind the depth of computational resources available for A.I. routines, physics, and complex audio algorithms. If DirectX 10 delivers on its promise, PC gaming will be better than ever.

We haven't been this excited about a new development in graphics since 3dfx and Rendition showed off their first products. And the best news is that it looks as though the fresh hardware is going to make today's games look better and run faster, too. DirectX 10 demands a lot of power, which means you'll be able turn on a lot of DirectX 9 features simultaneously—high dynamic-range lighting and antialiasing, for example—without taking a performance hit. So even if the development of new DirectX 10 titles lags, or you decide to hold off on moving up to Windows Vista, you'll still benefit from this new generation of videocards.

Continued from page 85

DirectX 10 Backgrounder

Might this be the only reason anyone will buy Windows Vista?

You're probably familiar with Moore's Law, which holds that the number of transistors on a chip—and by extension, the computational power of integrated circuits—doubles approximately every two years. The graphics-processor designers at ATI and Nvidia are performing at a rate of Moore's Law squared, improving the performance of their products by a rate of double *every* year.

Having this power is fantastic for games, but it's also inherently useful for such specialized purposes as video editing, graphics design, CAD, and many other disciplines. But because Windows historically hasn't demanded all that much GPU power, graphics hasn't been much of a design priority for system manufacturers—that's why Intel has been able to dominate the graphics market by selling integrated graphics offering a fraction of the computational power of even low-end discrete GPUs from ATI and Nvidia.

Windows Vista changes all that, because it depends on the GPU to deliver a day-to-day desktop experience—especially if you buy a version with Aero, Windows' new bells-and-whistles interface. Even without Aero, the new Windows video playback infrastructure relies on the GPU to deliver high-definition video playback. The new Windows Photo Gallery taps GPU power, too. Microsoft created the DirectX 10 collection of application program interfaces—of which Direct3D is the most important—to leverage this processing power.

MEET DIRECTX 10

Microsoft is nothing if not conservative; but every once in a while, the hidebound software giant exposes itself to more than the usual amount of risk in order to embark on a new and strategically important endeavor. DirectX 10 is one such example. Microsoft has completely re-engineered this crucially important collection of APIs in order to strip away every impediment necessitated by maintaining backward compatibility.

There is a downside to this, but there's a tremendous upside for those of us who want to see the state of the art of graphics advance. Let's talk about the downside first—and briefly: You're going to need a new videocard to take full advantage of DirectX 10. For the time being, only two GPUs can lay claim to being DirectX 10 compatible. They're both from Nvidia, and they're both expensive. So while there might be plenty of competition between board vendors selling DirectX 10 videocards, prices will likely remain high because Nvidia has no need to discount the main component that goes into these cards.

DirectX 10 also incorporates some of the advanced tools and application program interfaces from Microsoft's Xbox and Xbox 360, which should simplify the efforts of game developers interested in porting their software from one platform to the other. These will include XACT (Cross-platform Audio Creation Tool), which simplifies the process of producing audio capable of running on a range of sound hardware; and XInput, so the same game controllers can be used on both the Xbox and a Windows PC. Other legacy DirectX APIs, including DirectPlay, DirectInput, and DirectMusic, have been streamlined and absorbed.

BYE-BYE CAPS BITS

One of Microsoft's most important changes does away with what are known as capabilities (caps) bits. In previous versions of DirectX, software developers couldn't rely on hardware—videocards, most importantly—supporting all the features that DirectX had to offer. In the DirectX 9 era, for example, ATI's Radeon 800-series cards qualified as being DirectX 9-compliant even though they didn't support Shader Model 3.0; by the same token, Nvidia's GeForce 6- and 7-series cards were considered DirectX 9-compliant even though they couldn't perform high dynamic-range lighting and anti-aliasing at the same time. In such instances, capabilities bits within the card informed DirectX which features it *could* support.

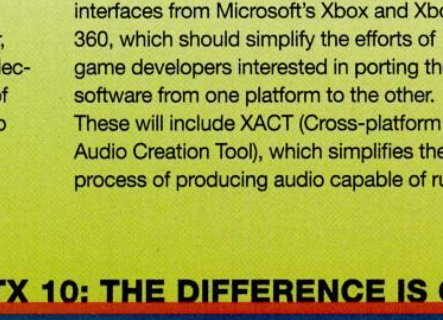
There are no caps bits in DirectX 10: In order to be considered compliant, hardware must support *all* the new API's feature set (with a handful of relatively minor exceptions). For the most part, this means support for all aspects of Shader Model 4.0. For game developers, the elimination of caps bits make the job of programming for the PC nearly as consistent as it is for game consoles.

Continued on page 88

DIRECTX 9 VS. DIRECTX 10: THE DIFFERENCE IS GRAPHIC

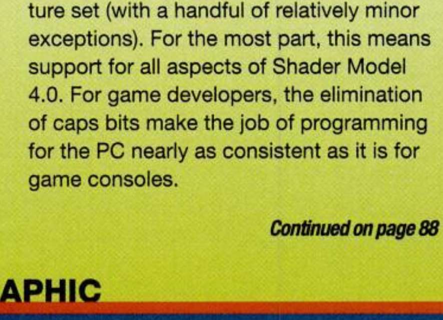
Game developers have squeezed just about everything they can from DirectX 9, but games that take advantage of DirectX 10 and run on DX10 hardware make DX9 games look positively primitive. DX10 games will have a much higher level of detail, better lighting, brighter colors, and much more.

DIRECTX 9



The screenshot above, taken from Funcom's upcoming MMO *Age of Conan: Hyborian Adventures*, is replete with detailed textures and terrific shadows. This is about as good as it gets with DirectX 9.

DIRECTX 10



This screenshot depicting the same scene from the same game shows what DirectX 10 can deliver: Richer color, textures with more detail, and better realism. Notice the shadows, and how smoothly the curves in the arches are rendered.

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Shadows of Angmar
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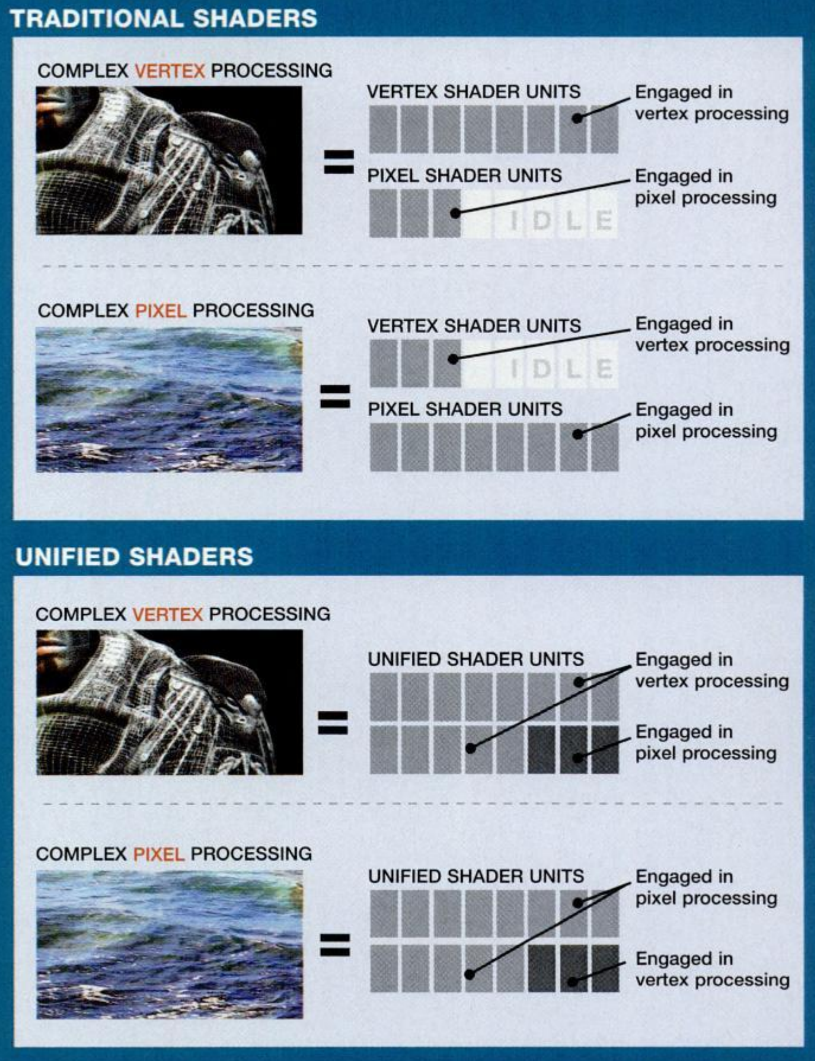
Continued from page 86

AN ENTIRELY NEW SHADER ARCHITECTURE

Unified shaders make more efficient use of hardware


TRADITIONAL SHADERS
COMPLEX VERTEX PROCESSING
VERTEX SHADER UNITS
Engaged in vertex processing
PIXEL SHADER UNITS
Engaged in pixel processing
IDLE
COMPLEX PIXEL PROCESSING
VERTEX SHADER UNITS
Engaged in vertex processing
IDLE
PIXEL SHADER UNITS
Engaged in pixel processing
UNIFIED SHADERS
COMPLEX VERTEX PROCESSING
UNIFIED SHADER UNITS
Engaged in vertex processing
Engaged in pixel processing
COMPLEX PIXEL PROCESSING
UNIFIED SHADER UNITS
Engaged in pixel processing
Engaged in vertex processing

DEDICATED DOESN'T ALWAYS MEAN SUPERIOR

Hardware that's dedicated to a certain task usually does a better job at that task than multipurpose hardware. In DirectX 9.0, for instance, GPUs have components dedicated to executing vertex-shader code (simple geometry, basically) and others dedicated to running pixel-shader operations. DirectX 10 takes a different approach. It envisions a unified architecture in which any of the GPU's shader-processing units can execute any of the three types of shader code: the aforementioned vertex and pixel instructions, plus the new category of geometry.

Microsoft's reasoning is sound: If a game needs a lot of geometry processing at a particular moment in time, for example, why not dedicate all the GPU's resources to it instead of leaving thousands of transistors standing around with their figurative arms folded saying "Hey, that's not *my* job." Dynamic load balancing and thread arbiters in the GPU will prioritize hardware utilization to ensure that the most important tasks are always performed first. This unified architecture should also enable the graphics pipeline to evolve even more rapidly, because the hardware on which it operates is flexible enough that it can handle new tasks.

COOL TOOLS

One way to improve 3D graphics performance is to reduce the number of draw calls made to the CPU. This is particularly important in scenes where there are many complex objects, such as jungle foliage or armies arrayed on a battlefield. Direct3D 10 supports a technique known as instancing to accomplish this. Basically, a software application can instruct the GPU to draw the same object multiple times in multiple places without requiring the CPU to intervene.

Texture arrays are then used to avoid having every object in a scene look exactly the same. A texture array allows multiple textures to be loaded into the same resource. When each object is drawn, the program can choose from an index of textures that can be mapped onto it.

We discussed the Direct3D 10 pipeline in some depth in our "2007 Tech Preview" in the Holiday issue, but there's an important aspect of the new Geometry Shader that we didn't cover: stream output. Previous generations of the Direct3D pipeline functioned in a strictly linear fashion, with instructions entering the top and images emerging from the bottom to be sent to the display. Stream output enables the vertex and geometry shaders to store their results in memory buffers, and then circulate this output back to the top of the pipeline for a second round of processing—with minimal intervention from the CPU. Stream output should increase the GPU's capacity for parallel processing by a significant factor.

SO WHAT'S NEXT?

Microsoft is already hard at work on the next big thing: DirectX 10.1 This point release will include all the image-quality goodness of DX10, and it will add a number of new features that should allow developers and GPU manufacturers to take PC image quality even further. One of the most significant improvements will impact an application's control over antialiasing. In the current state of affairs, under which AA is either on or off, GPU cycles are frequently wasted on scenes where aliasing isn't going to be noticed anyway. Under DirectX 10.1, developers can control not only both multisample and supersample antialiasing, they can also choose the best sample patterns for each rendering scenario.

We've barely scratched the surface of DirectX 10. With support for shader instructions of unlimited length, improved load balancing between the CPU and GPU, reduced API and driver overhead, and a vision of GPUs offering precision equal to that of CPUs, DX10 and the videocards that support it hold the promise to blow our minds.

Nvidia GeForce 8800

The most powerful graphics processor we've ever tested

Nvidia's GeForce 8800 GTX is the first GPU to support Microsoft's DirectX 10.

Testing incrementally faster and incrementally cheaper DirectX 9 videocards is pretty boring when you're on the cusp of a new product introduction that's going to change everything. The last time we got excited enough to award a new card a Kick Ass award was when Nvidia introduced the dual-GPU 7950 GX2—nearly six months ago!

Nvidia's GeForce 8800 GTX and 8800 GTS change all that. Each is based on an entirely new architecture—the first from-the-ground-up redesign since Nvidia debuted the GeForce 7800 in November 2005—and each is designed to deliver awesome performance with games designed for Microsoft's DirectX 10 and Shader Model 4.0. These GPUs are *fast*. In our benchmarks, a single GeForce 8800 GTX delivered faster performance than two of the fastest GeForce 7900 GTX cards running in SLI that we've ever tested.

This boost is a happy development. DX10 is so different from DX9 that we had wondered if DX10 GPUs would be fast with DX10 games and slow to mediocre with DX9 titles. Since the 8800 cards are so fast with DX9 games, there's no reason to wait for DX10 software to move up.

STREAM PROCESSORS

The single most significant difference between 8800-series GPUs and everything that preceded them is that they're based on a unified shader architecture. Both GPUs boast a staggering 681 million transistors, and the GTX is outfitted with 128 shader-processing units (Nvidia calls them "stream processors"). The slightly less-powerful 8800 GTS has 96 stream processors. In both situations, each shader unit can be dynamically allocated to execute vertex, pixel, geometry, or even physics instructions.

Both 8800 models possess asymmetric clocks, meaning that the stream processors within the cores are clocked higher than the cores themselves. Nvidia's 7-series architecture is similar in that its vertex-shader units are clocked higher than its cores. The GTX's stream processors run at 1.35GHz, while its core hums along at 575MHz; GTS stream processors run at 1.2GHz with a 500MHz core.

The GTX is outfitted with 24 rasterizers (which convert 3D information into 2D pixels) and can output 24 pixels per clock cycle; the GTS is equipped with 20 rasterizers and can output 20 pixels per cycle. Both specs represent a somewhat marginal improvement over the 16-rasterizer 7900 GTX.

After observing ATI's troubled X1900-series launch last year, Nvidia didn't take any chances with new process-size technologies: The 8800 series is fabricated using a 90nm process. The trade-off for Nvidia is yield: Even though these chips are assembled on 300mm wafers, the fabs can fit just 80 die on each one. We expect the company to shift to a smaller, more efficient process size over time.

POWER REQUIREMENTS

Considering the number of transistors on these chips, the 8800 series is remarkably power efficient. Nvidia recommends at least a 450-watt power supply for an 8800 GTX (with a 12-volt current rating of 30 amps) and a 400-watt minimum PSU for the 8800 GTS (with a 12-volt current rating of 26 amps). You'll need much more than that for an SLI rig. Nvidia's not talking about quad SLI; and the company has not made any announcements about a dual-GPU/single-card configuration a la the 7950 GX2.

Each GTX card needs two six-pin power connectors because, Nvidia tells us, the PCI Express specification allows cards to draw only 75 watts through their edge connector and 75 watts through each six-pin power connector (the 8800 GTX draws 165 watts from the power supply).

Whether you'll have enough room inside your case for these cards is a whole other kettle of pixels. Thanks to their thick coolers, both cards consume two slots, and the 10.5-inch-long 8800 GTX just barely fit in the Cooler Master Centurion case we use for our test bed (it wouldn't fit at all had Nvidia not moved the dual power connectors from the end of the card to the top edge).

The 8800 GTS is just slightly shorter at nine inches. Both coolers are relatively quiet, and both cards are outfitted with HDCP support for playing back copy-protected movies.

GEFORCE 8800 SPEC CHART

	8800 GTS	8800 GTX
NO. OF SHADER UNITS	96	128
CORE CLOCK SPEED	500MHz	575MHz
SHADER-UNIT CLOCK SPEED	1.2GHz	1.35GHz
FRAME BUFFER	640MB GDDR3	768MB GDDR3
MEMORY SPEED	800MHz	900MHz
MEMORY INTERFACE	320-bit	384-bit
NO. OF RASTERIZERS	20	24

MEMORABLE MEMORY

Stream Output is just one of the many cool features in DirectX 10. It allows data to be passed directly from the vertex or geometry shaders straight into memory and then back to the top of the pipeline. Stream output will deliver awesome particle and physics effects, but its effectiveness will hinge on having lots of available memory.

And Nvidia delivers: The 8800 GTX has a 384-bit interface to 768MB of memory clocked at 900MHz; the 8800 GTS has a 320-bit interface to 640MB of RAM running at 800MHz. Nvidia says it has no plans to introduce reference-design cards with 512- or 256MB of memory.

We think that's a good idea. Game developers tend to shoot for the lowest common denominator, and we'd rather see them stretch their artistic muscles than squeeze their visions into too-small frame buffers.

Continued on page 90

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PHYSICS PROCESSING

Nvidia and ATI have both been touting the idea of using their GPUs to accelerate physics computations. We've pooh-poohed the concept in the past, because it seemed as though the graphics companies were simply reaching for an excuse to sell more parts. If Nvidia's Quantum Effects technology takes off, we might have to change our tune.

David Kirk, Nvidia's chief scientist, justified our initial skepticism during the company's GeForce 8800 press briefing with his comment that "...previously, you could do only part of the physics processing on the GPU because the underlying hardware wasn't cut out for it." But the parallel-processor nature of Nvidia's new architecture renders it much more adaptable for physics processing; in fact, the company maintains that it has baked some features into the chip that are dedicated to non-graphics processing.

As Kirk explained it, CPUs are not well-suited to physics processing because they can solve only one equation at a time and they execute most instructions out of their cache. This requires a large and complex set of control logic to keep the CPU busy. The unified shader units in the 8800 series can share data via a parallel data cache without even having to use video memory. This is a major shift from Nvidia's previous position of "We can do physics processing, too." With the 8800, they're saying "We've architected this new GPU to do a very good job of physics processing."

It will be difficult to measure Nvidia's claims in the absence of good benchmarking tools—not to mention games that make sufficient use of physics to really matter—but you'll find the results of our hands-on testing of the 8800 GTX on the next page. Turn to our reviews section for more in-depth results.

HOW WILL ATI AND AGEIA RESPOND?

We know that ATI's next graphics processor will feature a unified shader architecture because the company publicly said so way back in April 2006. ATI has also made a lot of noise about its stream-processing initiative, which harnesses the multiple multithreaded cores in its GPUs to run distributed-computing applications such as Folding@Home.

Unfortunately, the only other information we've been able to pry from ATI is that we can expect to hear more about its new GPU—code-named R600—around the time that Windows Vista is released. Our hope is that AMD's acquisition of ATI hasn't been too much of a distraction for the product-management and engineering teams, and that they have tremendously ambitious plans to outdo their arch rivals at Nvidia. Anything less would undoubtedly slow the advance of the state of the art, because no company sees value in competing with itself.

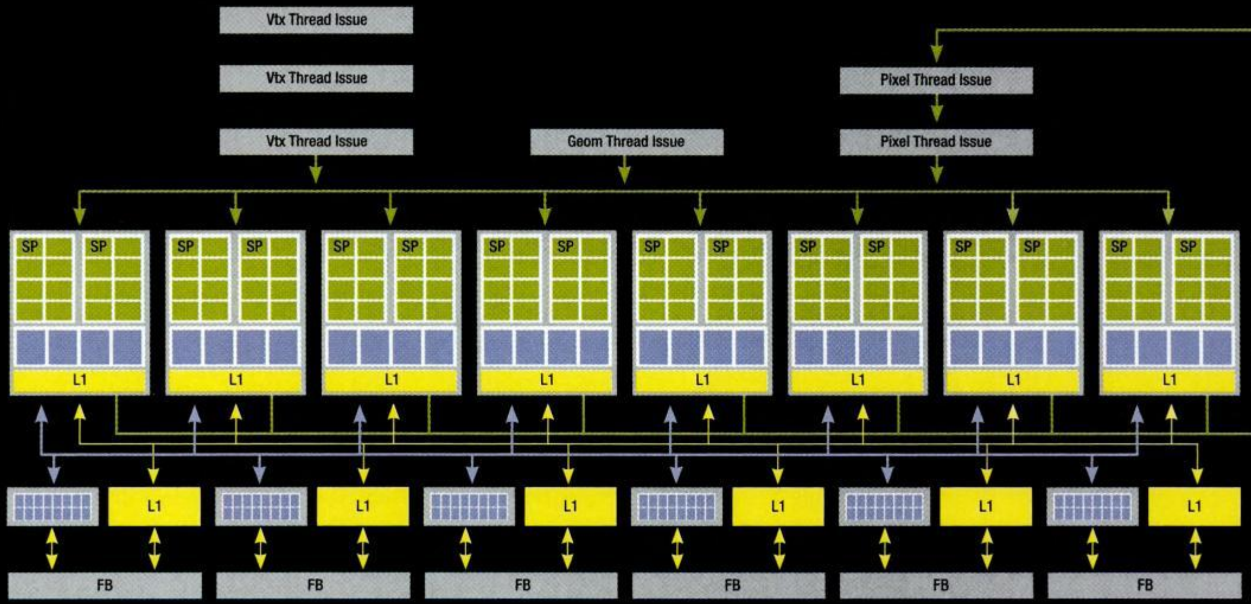
It's more difficult to predict how the 8800 series will impact Ageia. Physics remains a wide-open field that game developers have yet to exploit. We remain believers in the concept of building dedicated hardware for such a resource-intensive task, but it's been more than six months since Ageia introduced its PhysX PPU and we still don't have the killer app to justify buying a card equipped with one.

INSIDE THE GEFORCE 8800 GTX

NEXT-GEN GAMING

This block diagram illustrates the highly parallel nature of the GeForce 8800's architecture. Instructions from the host CPU are fed to an input assembler, which issues a vertex thread to be processed by the shader core. Once a vertex instruction has been executed, the thread processor sends the result on either for geometry processing (where entirely new vertices might be created—or destroyed) or for pixel-shading.

The GPU can also temporarily store computational results in L1 or L2 cache and then route them back to the top of the shader core, where they'll be repeatedly dispatched, processed, and re-looped until all shader operations have been completed and the resulting pixel fragment is sent on to the rasterizer.



Hands-on with the First DirectX 10 Videocard

So, Nvidia has won the race to produce the first DirectX 10 videocard. The GPU and the card on which it's mounted are physically huge, there's tons of memory, and the list of specs and features is impressive. But the only way to tell what Nvidia has wrought is to test the bugger, and we have—as much as is possible.

You'll find a more in-depth look at the GeForce 8800 GTX and the GeForce 8800 GTS in the Reviews section, but we couldn't resist providing some highlights of our time with the top-shelf GTX version here. This GPU is certainly fast with DirectX 9 games. In fact, a single 8800 GTX proved to be faster on every benchmark than a single Radeon X1950 XTX, GeForce 7900 GTX, or GeForce 7950 GX2. It also delivered better benchmark results than two X1950 XTXs running in CrossFire and a pair of 7900 GTXs in SLI.

But ATI's Radeon X1950 XTX and Nvidia's GeForce 7900 GTX are arguably fast enough for today's games—even at the 1920x1200 resolution we test at. And since Vista has not yet arrived and there are no DirectX 10 games available, just what benefit is to be derived from even more speed? We found that the answer lies not in sheer frame rate but in image quality. You might have to wait for games developed for Shader Model 4.0, but you won't have to wait to turn on or turn up all the visual enhancements for today's games running Shader Model 3.0.

Nvidia's 7-series GeForce cards, for instance, can't run high dynamic-range lighting and perform antialiasing at the same time. The 8800 can, and while the GPU took a performance hit when we enabled 4x antialiasing and 16x anisotropic filtering in *3DMark06,* it still delivered faster benchmark results than a GeForce 7950 GX2 running with zero AA and only 8x aniso.

ATI's Radeon X1900 series doesn't suffer from such a limitation, but ATI's top-end part can't hold a candle to the 8800 GTX while performing both these tasks at once. When we enabled soft shadows, 4x antialiasing, and 16x anisotropic filtering in *FEAR*, for example, the 8800 GTX delivered a benchmark result that was five frames per second faster than the X1950 XTX's score while running without any AA at all.

HOW WE TEST

In the absence of Vista, DirectX 10, Shader Model 4.0, and games designed to run in such an environment, all we can do to measure the prowess of Nvidia's GeForce 8800 GTX is to run benchmarks designed for DirectX 9 and Shader Model 3.0. And based on the numbers we're seeing, Nvidia has much to be proud of.

The new chip is not only faster than any preceding GPU, it's dramatically faster. In nearly all our benchmarks, we realized a 2x increase or came very close to it. Game 1 and Game 2 from *3DMark06* use Shader Model 3.0 for all its worth, so we're accustomed to seeing low frame rates because we test at such a high resolution: 1920x1200. To see a performance delta just shy of 2x in Game 2—and *more* than 2x in Game 1—is nothing short of remarkable.

Game 2 depicts many thin horizontal and vertical lines, which look extremely jagged without antialiasing. We couldn't run this benchmark with AA turned on with previous generations of Nvidia GPUs, so we didn't with ATI's, either. Similar limitations apply to benchmarking *FEAR* and *Company of Heroes.* Now that the GPUs from both camps support the simultaneous use of HDR and AA, we'll enable both features in every benchmark that supports them.

We'll also run *Quake 4* in Ultra Quality mode whenever we test videocards with 512MB or larger frame buffers. This mode uses higher-quality textures to deliver much-improved image quality. We'll continue to test with 4x AA when the benchmark offers us the choice, but we'll boost anisotropic filtering to 16x.

We're also moving our videocard testing from a 2.6GHz AMD FX-60 platform to one based on Intel's Core 2 Extreme. Time constraints prevented us from retesting the GeForce 7900 GTX, GeForce 7950 GX2, and Radeon X1950 XTX cards with Conroe, but we did benchmark the 8800 GTX with both platforms for an apples-to-apples comparison.

Continued on page 92

BENCHMARK RESULTS

We won't know how well the GeForce 8800 series performs with Direct3D 10 games until we have some Pixel Shader 4.0 games to test it with. But, we know this card is a barn-burner when it comes to running today's Direct3D 9 games and benchmarks; in fact, it's faster than two super-fast 7900 GTX cards running in SLI in most situations.

TEST BED: AMD FX-60 (2.6GHZ)

	ASUS EN8800 GTX	XFX 7900 GTX XXX EDITION	XFX 7900 GTX XXX EDITION SLI	EVGA 7950 GX2	ATI RADEON X1950 GTX
3DMARK06 HDR/SM3 #1 (FPS)	**33.6**	15.0	27.2	19.3	18.4
3DMARK06 HDR/SM3 #2 (FPS)	**38.2**	20.7	**38.2**	27.3	20.0
QUAKE 4 (FPS)	**98.4**	66.7	**113.8**	89.3	66.3
COMPANY OF HEROES (FPS)	**77.2**	38.1	DID NOT TEST	DID NOT TEST	32.4
FEAR (FPS)	**71**	42	70	57	35
HQV SCORE	113	88	88	88	**118**

TEST BED: INTEL CORE 2 EXTREME X6800 W/ASUS EN8800 GTX

	HIGH QUALITY, 4X AA, 8X ANISO	ULTRA QUALITY, 4X AA, 16X ANISO		FRAME-RATE HIT
QUAKE 4	102.9	93.2		9%

	SOFT SHADOWS ON, AA DISABLED, 8X ANISO	SOFT SHADOWS ON, 4X AA, 16X ANISO	FRAME-RATE HIT
FEAR	77	43	43%

Top benchmark: Best scores are bolded. Tested with an Asus A8N32-SLI motherboard with a dual-core 2.6GHz Athlon 64 FX-60 CPU and 2GB of Corsair DDR400 RAM. Bottom benchmarks: Tested with an EVGA nForce 680i SLI motherboard with a 2.93GHz Intel Core 2 Extreme X6800 CPU and 2GB of Corsair DDR2 RAM. All benchmarks run at the default resolution of a 23-inch ViewSonic VP2330wb display: 1920x1200.

Continued from page 91

And Now: The Eye Candy

Now that we've seen how fast the first DirectX 10 videocard can be with current-generation games, let's take a look at what we can expect from next-gen titles. We selected each of these screenshots to represent one new visual effect that's not currently achievable with DirectX 9.

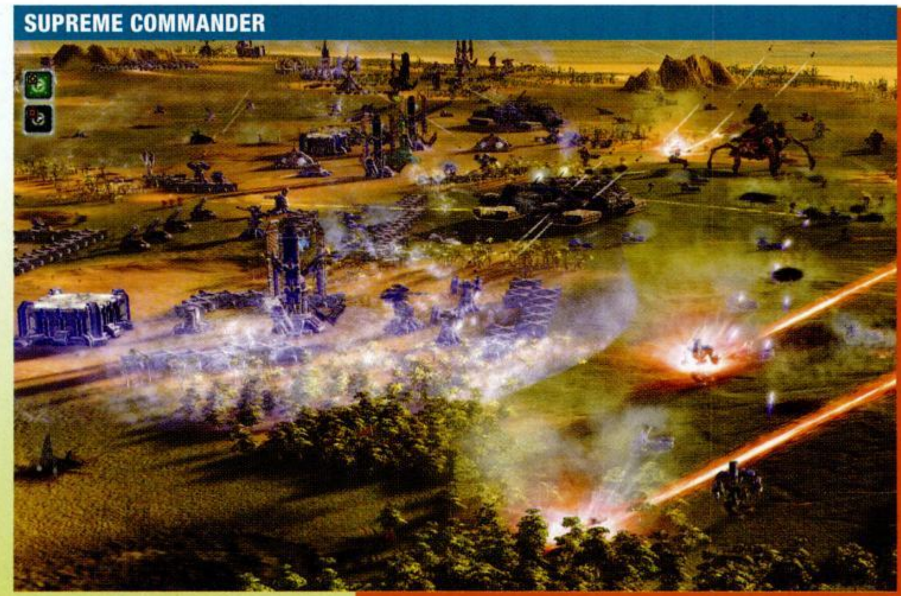
SIGNIFICANTLY IMPROVED INSTANCING

Increases the number and diversity of objects in games such as Supreme Commander

RTS games have lagged in visual quality compared to first-person shooters because the games must render so many objects. Developers must choose between limiting the number of units onscreen at any one moment or rendering lots that look nearly identical. Boring.

In Gas Powered Games' *Supreme Commander*, you'll be able to deploy hundreds of very different units all at one time, thanks to DirectX 10's improved instancing routines. First introduced with DirectX 9, instancing enables developers to create one object model and have it drawn many times using just one "draw" call; however, each object's movement and orientation were similar. DirectX 10 liberates programmers from the restriction of simple cloning by allowing them to assign each instanced object with a texture selected from a texture array. And to ensure that each object behaves as well as looks different, DirectX 10 supports a large palette of animation routines.

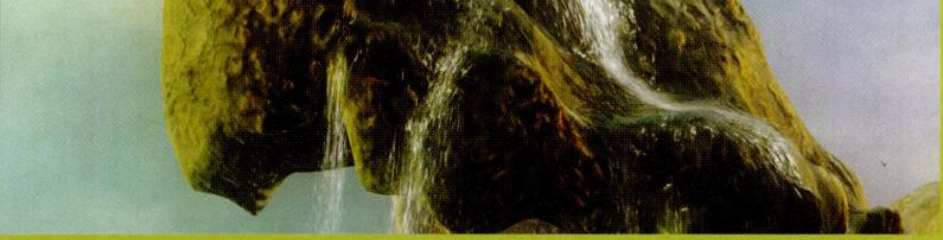
SUPREME COMMANDER



PROCEDURALLY GENERATED EFFECTS

Real-time geometry creation simulates nature

NVIDIA'S WATERFALL DEMO



DirectX 9 supports procedurally generated effects, but all objects must be based on pre-fabricated vertex or texture data. The presence of a geometry shader in DirectX 10 allows the GPU to generate new data, which enables developers to create visual effects based on real-time calculations.

In this Nvidia-provided demo, a column of rock continuously "grows" from the top of the screen. Waterfalls can emerge from any point on the column and cascade down its face, forming pools on flat surfaces. Vines crawl across its face, thicken and branch out over time, and gradually decay until they disappear. Pixel-shader routines, meanwhile, give the object its rich texture and high definition.

Note the glistening textures indicating where water has moved across the surface. In the demo, these slowly fade to a duller finish as the waterfall dries up and ceases to flow. Procedurally generated effects should be a boon to games like Will Wright's upcoming *Spore*.

BETTER-LOOKING SKIN TEXTURES

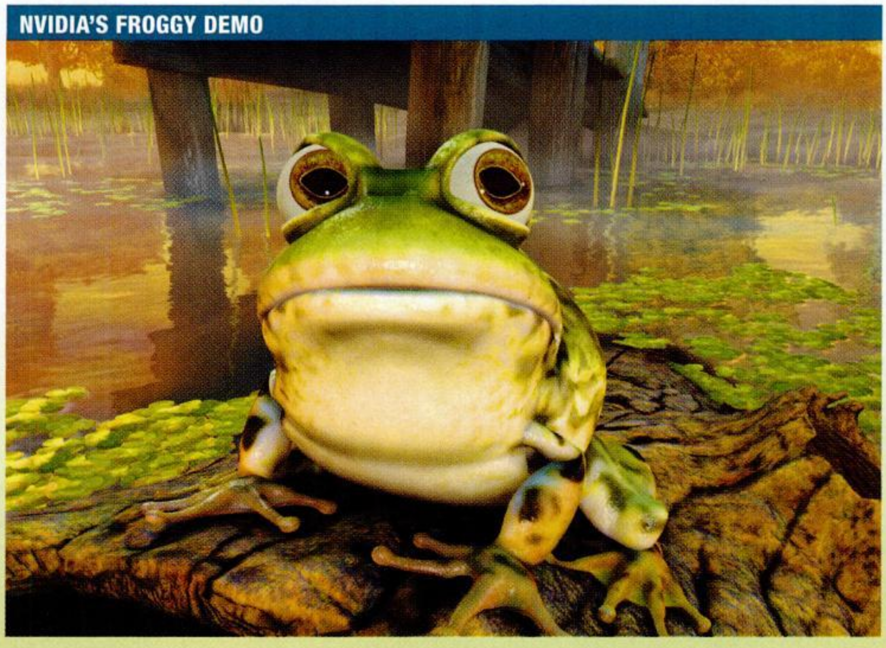
New lighting models will deliver heightened realism

Human and animal skin is one of the most difficult textures to render because of the way it both absorbs and reflects light. Some light is reflected off the surface of skin, but much passes through the first few layers, bounces around at irregular angles, and then re-emerges. The phenomenon is known as sub-surface scattering, and it's notoriously difficult to render because in the real world, the light that re-emerges is tinted by the blood in the dermis.

Most lighting models are designed for hard surfaces and don't take sub-surface scattering into account. The fact that DirectX 10's Shader Model 4.0 supports immensely complex shader routines, coupled with its vision of a unified architecture in which all of the GPU's shader-processing units can be dedicated to either pixel, vertex, or geometry shading will enable developers to create extremely sophisticated lighting models.

Note the realistic depiction of the skin and eyes in the star of Nvidia's "Froggy" demo.

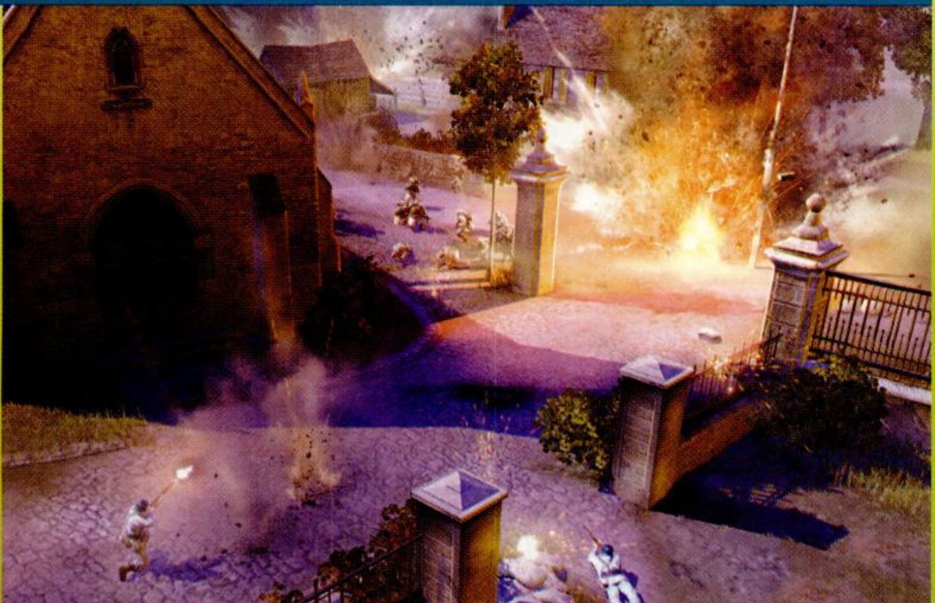
NVIDIA'S FROGGY DEMO



REALISTIC PHYSICS

People, animals, and objects will display complex movements

COMPANY OF HEROES



There's currently no DirectPhysics API in DX10, but we expect game developers will make extensive use of Direct3D 10's support for geometry shaders and its stream output features (discussed elsewhere in this story) to deliver highly realistic physics in their games.

Relic Entertainment's *Company of Heroes* is already a shining example of a game with destructible environments, and it makes terrific use of physics. Relic's upcoming DirectX 10 patch promises to render the game even more realistic, with shrapnel and other particles flying everywhere.

If Ageia winds up folding its tent, it won't be because of DirectX 10, but in spite of it: There's nothing in DX10 that would prevent a game from executing physics routines on Ageia's PPU should developers decide to go down that path. The problem is that we've seen precious little movement on the accelerated physics front. MPC

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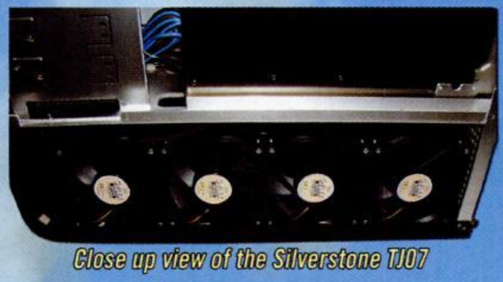

Close up view of the Silverstone TJ07

Silverstone TJ07 Custom Modified with Quad 120 Rad

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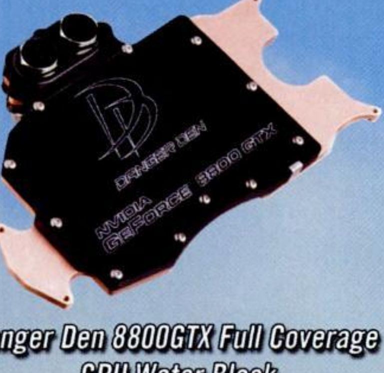
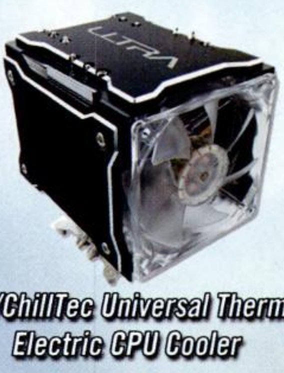


Danger Den 8800GTX Full Coverage GPU Water Block

Swiftech Apogee GT Universal CPU Water Block



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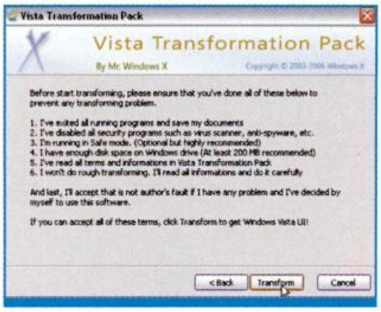
Continued from page 96



Vista Transformation Pack
Vista Transformation Pack
By Mr. Windows X
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Before start transforming, please ensure that you've done all of these below to prevent any transforming problem.

1. I've exited all running programs and save my documents
2. I've disabled all security programs such as virus scanner, anti-spyware, etc.
3. I'm running in Safe mode. (Optional but highly recommended)
4. I have enough disk space on Windows drive (At least 200 MB recommended)
5. I've read all terms and informations in Vista Transformation Pack
6. I won't do rough transforming. I'll read all informations and do it carefully

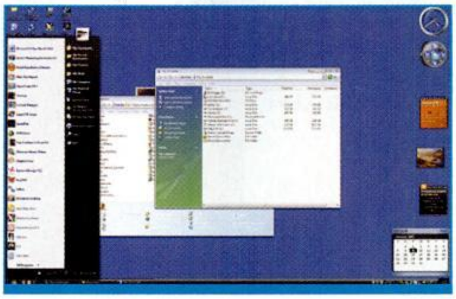
And last, I'll accept that is not author's fault if I have any problem and I've decided by myself to use this software.

If you can accept all of these terms, click Transform to get Windows Vista UI!

3 Take the Plunge! continued

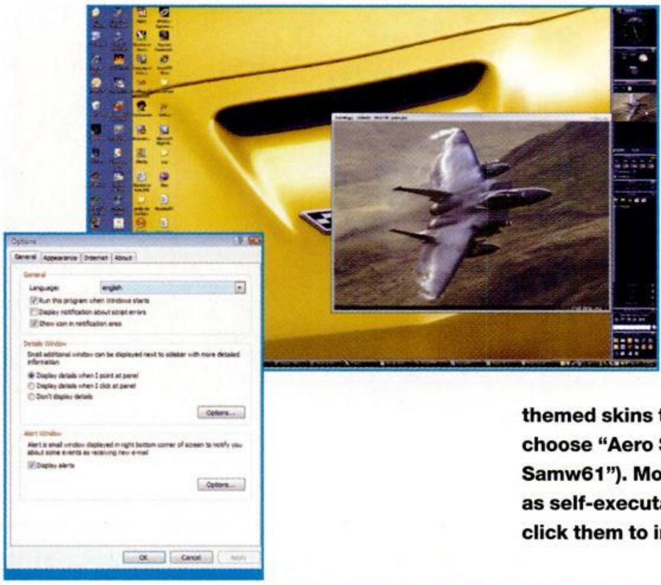
next screen. Click Next, and then click Transform on the next screen. Select the Segoe UI font (Windows Vista Font) and Vista toolbar options when prompted, wait for *VTP* to finish and then restart your system when prompted.

4 Final Tweaks



After your PC reboots you should see results similar to this screen. You may have to drag the sidebar gadgets to the right side of your primary monitor if you have a dual-screen display. You can tweak *VTP* and the sidebar by clicking on the taskbar button for the Styler and Tooltip options. You can use these to modify the color scheme, change the desktop theme between Vista Basic, Aero, and XP styles, etc. Close the sidebar completely—we'll install a better one in the next step.

5 Install the *Desktop Sidebar*



General

Language: english

☑ Run this program when Windows starts

☐ Display notification about script errors

☑ Show icon in notification area

Details Window

Small additional window can be displayed next to sidebar with more detailed information

● Display details when I point at panel

○ Display details when I click at panel

○ Don't display details

Alert Window

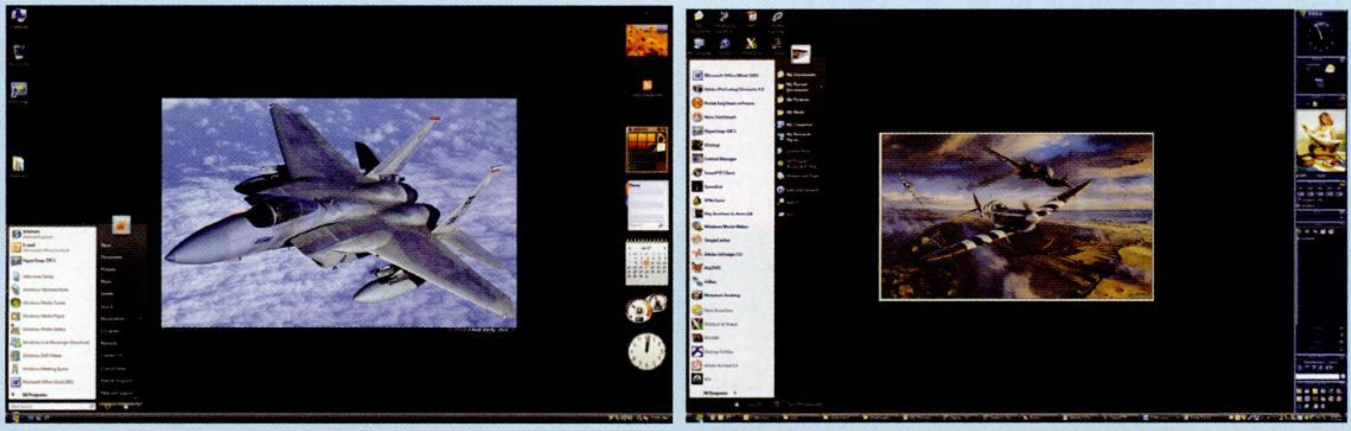
Alert is small window displayed in right bottom corner of screen to notify you about some events as receiving new e-mail

☑ Display alerts

Double-click on the *Desktop Sidebar* executable and follow the prompts—it's really that simple—and restart your system again. You should now see the *Desktop Sidebar* docked on the right side of your display. Now, go to www.desktopsidebar.com, select Download and look for Vista skins. Download any Vista-themed skins that look cool to you (we choose "Aero Style (Glass Mistic) by Samw61"). Most skins should download as self-executable files—just double-click them to install them. Right click the *Desktop Sidebar*, select Options, and then the Appearance tab to change skins.

Your desktop should now look something like this. The default setup includes sidebar gadgets for the Weather, Slideshow, System Performance, Newsroom, email, Media Player, and Quick Launch. To customize any of these gadgets, click the icons in their toolbars. You can resize Slideshow by dragging the window—hovering over a pic with the cursor launches a large version. You can add more Plugins (gadgets) to the sidebar via downloads on the web site. This is truly a useful, and fun, desktop tool.

Now, let your pals think you sprung for Vista!



Real or Memorex?

Will the real Vista please step forward...okay, the real one's on the right! Okay, we jest, the real Vista desktop is shown on the left, the fake Fendi is on the right. Not bad for zero dollars, eh? Make sure you download and install Media Player 11 and Internet Expolorer 7, too--both of these are included with Vista . However, they will work just fine with the "old and dusty XP".

Make XP Look Like Vista!

Don't want to shell out big bucks for Bill's new OS just yet? Turn your XP desktop into the digital equivalent of a knock-off Fendi Handbag!

TIME **1:00** HOURS: MINUTES

INGREDIENTS

- **INTERNET CONNECTION**
- **VISTA TRANSFORMATION PACK (FREEWARE)**
- **DESKTOP SIDEBAR (FREEWARE)**

(BOTH OF THESE ARE ON THE CD!)

There are a number of Vista makeovers out there on the 'net, which vary quite a bit in their degree of aggressiveness. Some are little more than barber shop crew cuts, which do little more than change your desktop color scheme; others are the equivalent of Rodeo Drive stylist appointments.

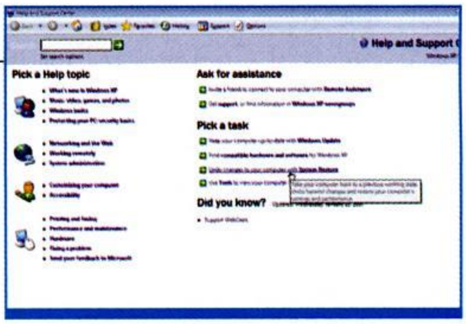
One we've tried and like quite a bit is the *Vista Transformation Pack*, which is now at "Final Version" 6.0. This app is the XP desktop equal of an *Oblivion* total conversion mod: It will modify just about everything from your boot screen to your desktop font/color/display scheme to resemble Vista's – including a desktop sidebar with gadgets for tracking the weather and news, and displaying photo slideshows and playing music and video files. Fire up Google, type in *Vista Transformation Pack*, and download it (you can also find it on the CD).

The sidebar isn't all that great, really, so we ditch it in favor of the more polished *Desktop Sidebar*, which you can find (for free) at www.desktopsidebar.com (as well as on the CD).

BY STEVE KLETT

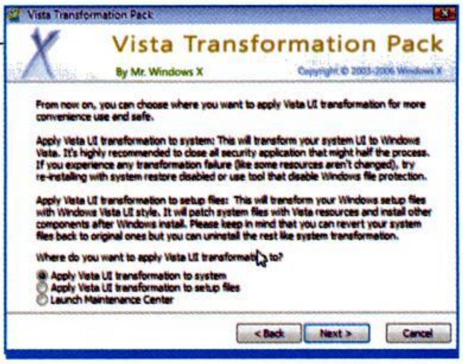
1 Set a System Restore Point

Whenever you use a user-created app of any kind, particularly one that alters system files such as *VTP*, it's prudent to set a system restore point before you install it. Go to Start>Help and Support>Pick a task and click the third option (Undo changes...) and follow the prompts.



2 Install VTP

Launch *VTP*, and zip to the third screen (make sure to uncheck the radio button on the first screen, however, which will attempt to change your browser's default homepage). Accept the license agreement terms and click Next. Give the FAQ a quick scan—if just for the humor—and click Next thrice more. Choose "Apply Vista UI transformation to system", which is the safest installation option should you uninstall the pack or restore your system later. Note you can return to this screen after installation and select "Launch Maintenance Center" to reconfigure, or uninstall *VTP* (you can also remove it via the XP Control Panel). Click Next and toggle the radio button for your monitor's aspect ratio, and leave the DPI setting at the default. Click Next.


Vista Transformation Pack
Vista Transformation Pack
By Mr. Windows X
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< Back
Next >
Cancel

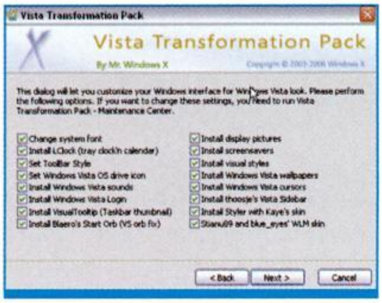
From now on, you can choose where you want to apply Vista UI transformation for more convenience use and safe.

Apply Vista UI transformation to system: This will transform your system UI to Windows Vista. It's highly recommended to close all security application that might half the process. If you experience any transformation failure (like some resources aren't changed), try re-installing with system restore disabled or use tool that disable Windows file protection.

Apply Vista UI transformation to setup files: This will transform your Windows setup files with Windows Vista UI style. It will patch system files with Vista resources and install other components after Windows install. Please keep in mind that you can revert your system files back to original ones but you can uninstall the rest like system transformation.

Where do you want to apply Vista UI transformation to?

● Apply Vista UI transformation to system
○ Apply Vista UI transformation to setup files
○ Launch Maintenance Center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Next >
Cancel

This dialog will let you customize your Windows interface for Windows Vista look. Please perform the following options. If you want to change these settings, you need to run Vista Transformation Pack - Maintenance Center.

☑ Change system font
☑ Install LClock (tray clock'n calendar)
☑ Set Toolbar Style
☑ Set Windows Vista OS drive icon
☑ Install Windows Vista sounds
☑ Install Windows Vista Logon
☑ Install VisualTooltip (Taskbar thumbnail)
☑ Install Blaero's Start Orb (VS orb fix)
☑ Install display pictures
☑ Install screensavers
☑ Install visual styles
☑ Install Windows Vista wallpapers
☑ Install Windows Vista cursors
☑ Install thoosje's Vista Sidebar
☑ Install Styler with Kaye's skin
☑ Stanu09 and blue_eyes' WLM skin

3 Take the Plunge!

To be ultra-conservative, for this story we will not transform system files, which can lead to system instability—try this at your own risk. On our test system, it worked fine, but different systems may have different results. (See Step 1 again if this makes you nervous.) Click Next and leave all the default settings as they are on the

continued on page 95

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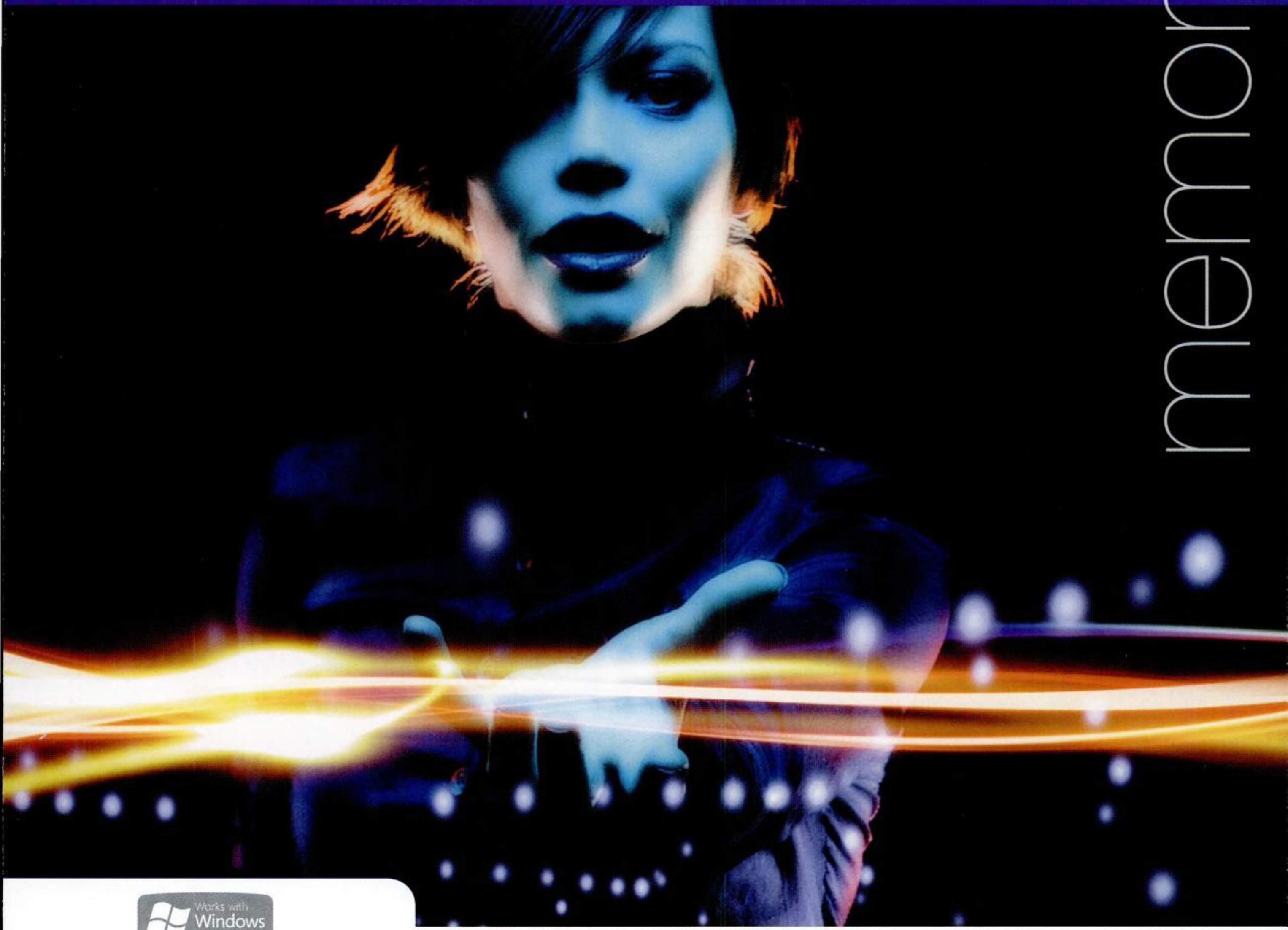

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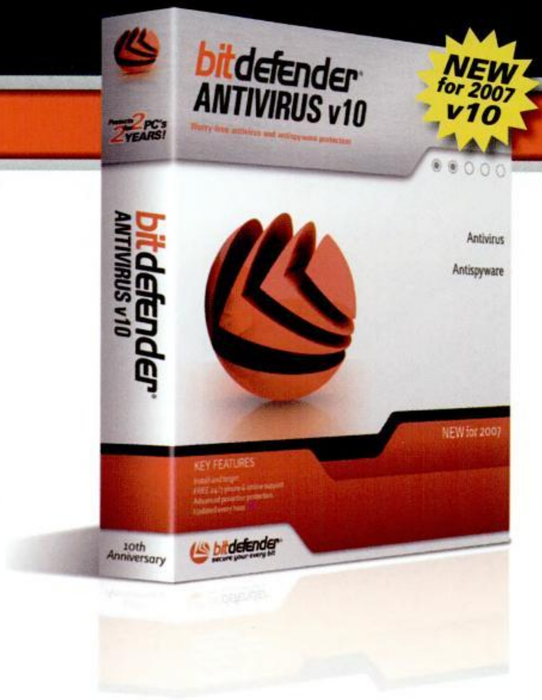
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